



Arsenic Facts for Public Water System Customers

Arsenic is a common, naturally occurring element in the earth's crust. Arsenic has been used commercially in wood preservation, paints, dyes, soaps, metals and semi-conductors.

What are the health effects of arsenic?

The consumption of food and water containing arsenic is the major source of human exposure. Exposure to inorganic arsenic carries some health risks. The amount of risk is related to the duration and level of exposure. Exposure to arsenic at low levels for long periods can add to a person's risk of developing lung, bladder, skin, kidney, nasal, liver and prostate cancer. Other long-term, non-cancerous effects include skin changes, and changes to the body's cardiovascular, pulmonary, immunological, neurological and endocrine systems (diabetes). The arsenic drinking water standard is set to lower the risk from chronic, or long-term, health effects.

Why is arsenic found in drinking water?

Arsenic can be found in drinking water as a result of natural processes or human activities. Higher levels of arsenic tend to be found more often in ground water than in surface water. The main source of arsenic in ground water is natural weathering and erosion of rocks and minerals. Most arsenic found in Ohio's ground water is naturally occurring.

How do I know whether I have arsenic in my drinking water?

If your drinking water comes from a community water system such as a city, village or manufactured home park, you should receive a Consumer Confidence Report in the mail every year that explains which contaminants have been found in your water. If arsenic has been detected, it will be disclosed in the report. If you would like to know whether arsenic has been detected at locations such as a schools or businesses, you can call the water supplier or Ohio EPA for the latest drinking water test results. If your drinking water comes from a private well, contact your local health department for information on arsenic levels in your area or about having your water tested.

What is the limit for arsenic in drinking water?

The current arsenic limit for public water systems, called a maximum contaminant level (MCL), is 0.010 milligrams per liter (mg/L), which is the same as 0.010 parts per million (ppm). Laboratories may also report levels in micrograms per liter ($\mu\text{g}/\text{L}$), which is the same as parts per billion (ppb). The MCL in micrograms per liter is 10 $\mu\text{g}/\text{L}$. The 10 $\mu\text{g}/\text{L}$ limit has been in effect in Ohio since Jan. 1, 2006 for all community and non-transient noncommunity public water systems. The previous MCL, in effect since 1975, was 50 $\mu\text{g}/\text{L}$.

Why was the standard lowered?

In 1996, Congress directed the U.S. Environmental Protection Agency to review the arsenic standard. To develop the new MCL, U.S. EPA requested that the National Academy of Sciences review worldwide studies of arsenic health effects to determine the health risks at various levels of exposure. The Academy panel concluded the risk level at 50 $\mu\text{g}/\text{L}$ was higher than previously thought and the standard should be lowered. When established in 2006, the 0.010 mg/L MCL was expected to prevent approximately 19 to 31 cases and five to eight deaths from bladder cancer per year in the U.S. An additional 19 to 25 lung cancer cases and 16 to 22 lung cancer deaths were expected to be avoided every year. The estimated yearly cost of lowering the MCL in 2006 was between \$1 and \$327 per household, depending on the size of the water system affected. Small public water systems serving fewer than 500 people will have the highest costs per household or individual.

What if my water system doesn't meet the new standard?

Compliance with the arsenic standard is determined by averaging quarterly arsenic results over a one-year period. When the annual average concentration exceeds the MCL, the public water system must notify its customers. In addition to direct notification at the time of the violation, community public water systems must include information about the violation in their annual Consumer Confidence Report.

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Ohio EPA also posts violations on its website at epa.ohio.gov/ddagw/pws/advisory_map.aspx. Information about the actions being taken to come into compliance is available from the water system and the water advisory notification. Ohio EPA's priority is to bring water systems into compliance as quickly as possible. Until the public water system meets the standard, it is safe to use the water for purposes such as bathing and washing dishes. Consumers must choose if they wish to use the water for drinking, cooking or to prepare baby formula or other food. When making this decision, consumers should consult with their physician regarding the arsenic concentration in their water supply and how long it is expected to take for the water system to comply with the standard.

What if I want to treat my tap water?

There are some treatment devices that remove arsenic at the tap. Proper maintenance of any home treatment device is critical to effectively remove arsenic and to avoid bacterial contamination. Consumers can contact the National Sanitation Foundation (NSF) at 1-800-673-8010 or nsf.org to find out which treatment devices are certified for arsenic removal. By selecting a device certified for arsenic removal by NSF, the Water Quality Association (WQA), or Underwriters Laboratory (UL) the consumer has assurance that the arsenic reduction claims have been verified.

When choosing a treatment device, consumers should consider factors such as purchase price, maintenance costs, style (plumbed to a separate tap, countertop), and whether the unit has an alarm or indicator to notify users when cleaning or part replacement is needed. If the water entering your home does not contain a chlorine residual or has high levels of iron, additional pretreatment may be required. To ensure that selected treatment devices are removing arsenic, consumers may contact an Ohio EPA certified laboratory for testing.

For more information

- U.S. EPA's arsenic website: epa.gov/dwreginfo/arsenic-rule-compliance-community-water-system-owners-and-operators
- The Safe Drinking Water Hotline: 1-800-426-4791
- Ohio EPA Division of Drinking and Ground Waters (DDAGW): (614) 644-2752 or online at epa.ohio.gov/ddagw
- Ohio Department of Health (Private Wells): (614) 466-7558