



Arsenic in drinking water: what you need to know

Why should I be concerned about arsenic in my drinking water?

In Arizona, groundwater can contain arsenic that comes from natural sources, such as rocks and soils, and from human activities such as mining. Short-term exposure to very high doses of arsenic can cause poisoning. Long-term exposure to small doses has been linked to skin changes, cardiovascular effects, and cancer. Whether you are affected depends on how much arsenic you are exposed to and for how long, as well as your sensitivity to arsenic.

What level of arsenic in my drinking water is considered safe?

The United States Environmental Protection Agency has set the arsenic standard for drinking water at

10 parts per billion (ppb) to protect consumers served by public water systems from the effects of long-term, chronic exposure to arsenic. 10 ppb is roughly equal to 5 teaspoons of ink in an Olympic-sized swimming pool. Read below to learn more about testing and treating your water to reach 10 ppb arsenic or less.

How can I learn what level of arsenic is in my drinking water?

- If you receive water from a **municipal or privately-owned water company**, they are required to test your water for arsenic. You should receive an annual water quality report from your water supplier by July 1st of each year.
- If you drink **bottled water**, bottled water companies are not required to report results of any water quality testing. If you choose bottled water, contact the supplier for information about impurities, including arsenic.
- If you have **your own well**, you are responsible for testing and maintaining its water quality. Read below for more information on treatment systems.
 - To find a **State-certified testing laboratory**, contact the AZ Dept. of Health Services (ADHS) at **(602) 364-0720** or see this University of Arizona list: cals.arizona.edu/pubs/garden/az1111.pdf.
 - For help **understanding water test results**, contact Jennifer Botsford at ADHS at (602) 364-3128.

Arsenic is colorless and tasteless, so you cannot know it is there unless you test for it.

What can I do if there is arsenic in my water?

- If arsenic in your water is **less than 10 ppb**, it is OK for drinking and cooking.
- If arsenic in your water is **between 10 – 200 ppb**, it is not an emergency, but make plans to get water for drinking and cooking from a different source, or install a home treatment system.
- If arsenic in your water is **over 200 ppb**, DO NOT use this water for drinking and cooking. Use another source immediately and consider installing and maintaining a home treatment system. If the arsenic is less than 500 ppb, you can continue to use this water for bathing and washing.
- **Other sources of water** include bottled water or connecting to a public water supply. If you choose bottled water, contact the supplier for information about impurities, including arsenic, and be sure to clean and disinfect your water containers regularly.
- **Home treatment options** depend on factors such as how much arsenic you have, what other contaminants or conditions are present, and how much water you use.
 - **MANY WATER TREATMENT TECHNIQUES DO NOT REMOVE ARSENIC**, including particle filters, activated carbon filters (e.g. Brita), chlorine (bleach) disinfection, or heating/boiling your water. Water softening systems remove calcium and other minerals from hard water but DO NOT remove arsenic.

How do I choose a home water treatment system that removes arsenic?

There are many factors to consider when choosing a home water treatment system. For help with analyzing your water treatment needs and identifying an appropriate solution, **find a Water Professional** at: wqa.org/members.cfm?section=1.

Choosing a **point-of-use** (at a single tap) or **point-of-entry** (whole house) system will depend on how much water you need. Point-of-use treatment can often treat enough water needed for drinking and cooking.

- **Reverse osmosis (RO)** filters out contaminants by using pressure to force water through a special membrane. It is usually applied as a point-of-use system. **RO is very effective at removing arsenic** (removing up to 95%) and can reduce other contaminants as well.
 - Keep in mind that RO systems will increase your total water use and may need to be combined with other systems such as water softeners. RO systems require regular maintenance but do not require the addition of chemicals. There are a wide variety of choices for RO commercially, and many plumbers are familiar with it. Initial costs for installing an RO system are about \$300 and up; annual costs are about \$50 and up for membrane and filter replacement.
- **Distillation** is another effective technique for removing arsenic and other contaminants from water. However, AZ Department of Health Services does not recommend using only distilled water for all your drinking water needs.
- **Specialty media such as iron filters** are another option that can be easy to install as point-of-use or point-of-entry systems. However, these filters are relatively new to the home treatment market, so they may be harder to find and are more expensive, and their efficiency depends on other common water constituents.

It is important to:

- Test your water before choosing a system to find out your starting level of arsenic.
- Keep in mind that many systems remove a percentage of arsenic, but not all of it.
- Consider other contaminants and water conditions when choosing a system(s).
- Test your water after installing a system, to make sure it is effective at removing arsenic to 10 ppb or less.

Where can I buy a system?

You can purchase systems from:

- A plumber
- Home hardware stores
- The internet

Ensure you buy a certified system:

- NSF International: nsf.org/certified/DWTU
- The Water Quality Association: wqa.org

After installation:

Test your water to make sure treatment is effective. Maintain your system according to manufacturer's instructions.

Where can I learn more about arsenic in drinking water?

- U.S. Environmental Protection Agency: water.epa.gov/lawsregs/rulesregs/sdwa/arsenic/index.cfm
- Centers for Disease Control and Prevention: cdc.gov/healthywater/drinking/private/wells/disease/arsenic.html
- University of Arizona Superfund Research Program (click "Water Booklets and Videos" for free downloads or "Order Form" to request a hard copy): <http://www.superfund.pharmacy.arizona.edu/content/informational-materials>
- University of Arizona Cooperative Extension: <http://extension.arizona.edu//private-wells-publications>

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