

A woman with long brown hair, wearing a light blue t-shirt, is smiling and looking down at a glass of water she is holding in her hands. She is in a kitchen setting, with a white countertop and a sink visible. The entire image is overlaid with a semi-transparent teal color.

How To Improve

# HOME WATER QUALITY

**Quality drinking water is important to our health and well-being.** We use water daily throughout our homes for cooking, cleaning, bathing, laundry and a host of other purposes. Our body takes in water through drinking and eating foods that contain some level of water. Water is critical to most items we purchase and consume in one way or another. The typical person uses about 75 gallons of water a day (roughly equivalent to 800 cans of soda).

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**So how can you make your home water quality better?**

**This whitepaper contains information on home water quality to help keep you and your family safe.**

## Let's get started with some basic tips you can do today to improve your water quality.

### Flush cold taps when household water is not used for several hours

Run cold water taps for two minutes before using water for drinking and cooking. When water sits in your pipes for long periods of time, water quality can decline.

### Do not use hot tap water for drinking and cooking

Hot water dissolves contaminants and may contain metals, sediment and bacteria that build up in the water heater. If you have household lead sources, hot water can cause lead to release into your drinking water.

### Routinely replace filter cartridges

Bacteria and metals can build up in filter cartridges. Be sure to follow the manufacturer's instructions for filter replacement. Replace old household plumbing and potential lead sources wherever possible.

### Replace old pipes

Replace galvanized plumbing with copper pipes and install "lead-free" plumbing fixtures that contain 0.25 percent lead or less. After installation, flush cold water taps for five minutes once a day for three days to ensure any lingering contaminants find their way out.

### Routinely clean faucet strainers

Sediment and metals can collect in the aerator screen located at the tip of your faucets. Replace aerators that are in poor condition. These are available at local hardware stores. *see [page 6](#) on how to clean faucet aerators.*

### Drain your water heater annually

Sediment, bacteria and metals can build up in the water heater tank. This can impact household water quality and water pressure.

The water service pipe connects the main water line to your household plumbing. The water service pipe is owned by the property owner. However, under certain conditions, your local water authority may be authorized to repair, maintain or renew the portion of the service pipe in public space. Maintenance of household plumbing and the portion of the service pipe on private property is the exclusive responsibility of the property owner. The material of water service pipes will vary from home to home.

A water service pipe may not be the same material on public as opposed to private property. Your local water authority or city should maintain records of water service pipes in public space. This historical data may be incomplete and may not include information about the service pipe material on private property.

Any households who still have lead service pipes may strongly want to consider a replacement. Property owners should first contact their local city to see if there is a lead service pipe replacement program. Most homes built after 1980 do not have lead pipes but you should always double check.

Follow the guidance below or contact a licensed plumber to determine the material of your water pipes. To identify the material of your service pipe material on private property, check your household water service connection (typically located in the basement). Homeowners should identify and replace old household pipes, particularly galvanized plumbing and sources of lead.

Here is a list of household plumbing that is used:

- Galvanized:** A dull, silver-gray color. Use a magnet - strong magnets will typically cling to galvanized pipes.
- Copper:** The color of a copper penny.
- Plastic:** White rigid pipe that is joined to water supply piping with a clamp.
- Lead:** A dull, silver-gray color that is easily scratched with a coin. Use a magnet - strong magnet s will not cling to lead pipes.

## Galvanized Plumbing & Impacts on Water Quality

Galvanized pipes are old, iron pipes that were installed in many homes built before the 1960s. Over many years, old, corrosion scales build up inside the walls of galvanized pipes. These pipes can cause discolored water and pressure issues. Galvanized pipes can also release lead and iron into the water. When lead is released from a lead service pipe and passes through galvanized plumbing (particularly over decades of use), lead can accumulate on the inside, corroding walls of this type of plumbing. Lead release from galvanized pipes can vary from home to home and can continue to occur even after a lead service pipe is replaced. We would strongly suggest considering replacing your pipes if they are galvanized.

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## How to Clean Faucet Aerators

Aerators are located at the tip of household faucets and have a screen to collect particles and sediment. Remove and clean aerators monthly and replace annually - aerators are available at your local hardware store

1. Unscrew the aerator. (You may need a wrench to do so.)
2. Separate the individual parts.
3. Remove any sediment (mineral or rust build up) on the screen and other parts. If necessary, soak the parts in white vinegar for a few minutes and scrub with a brush.
4. If the aerator is in poor condition or the rubber washer is disintegrated, install a new aerator.
5. Reassemble the aerator parts and screw on the faucet.
6. Repeat process for all household faucets. All faucets should have an aerator installed unless you have a faucet-mount filter installed at the tap

# Common Water Issues and What To Do

## Brown, Red, Orange, or Yellow Color Water

**Cause:** Sediment or rust from old household pipes or water mains, particularly iron or galvanized pipes. Temporary changes in flow (hydrant flushing) or pipe disturbances (construction or a water main break) can disrupt older pipes and cause discoloration.

### What to do:

Iron in water is a health risk. Flush cold water taps for 15 minutes. Do not use hot water until water clears. If you experience discolored water from your hot water tap for several hours, flush your water heater. Do not do laundry. If discoloration occurs during laundry, do not dry clothes. Rewash clothes to avoid stains. Replace old household plumbing, particularly galvanized pipes. Get a solid carbon block Point of Use (POU) filter or reverse osmosis for drinking and cooking.

## Cloudy Milky Water

**Cause:** Air bubbles in household pipes from changes in water temperature or construction. In cold weather, water travels from water mains into warmer household pipes, causing air bubbles to form and release at the tap. Construction can also allow air to enter the pipes. • Minerals in water - calcium or phosphate.

### What to do:

Air bubbles and minerals in water are not a health risk. Fill a glass with water, if the cloudiness disappears from bottom to top in a few minutes, it is air bubbles. If cloudiness settles to the bottom or does not clear, it is likely calcium or phosphate. Filter for drinking and cooking.

## Green or Blue Color Water

**Cause:** Copper plumbing corrosion. Newly installed plumbing can release metals into water.

### What to do:

Copper in water is a health risk. After installing new household pipes or fixtures, flush cold water taps for five minutes at a high flow rate once a day for three days or until water clears. Replace old copper plumbing. Get a solid carbon block point of use (POU) filter or reverse osmosis for drinking and cooking.

## White Particles In Your Water

**Cause:** Calcium build up in the water heater can collect in faucet aerators and appear in tap water. White particles can be visible in ice cubes made with tap water. Water heater - dip tube is made of a nontoxic plastic material that can break apart, collect in faucet aerators and appear in tap water.

### What to do:

Calcium in water is generally not a health risk but too much calcium can lead to issues like hypercalcemia but that has yet to be linked to water. Place the white material in a small amount of distilled vinegar. Calcium particles will bubble or dissolve within 24 hours. Plastic particles will not dissolve. Clean aerators. Flush water heater. Consider a solid carbon block point of use (POU) filter or reverse osmosis for drinking and cooking.

## Black Particles In Your Water

**Cause:** Rubber materials from plumbing gaskets or O-rings. Iron or manganese can be released from old pipes after construction or a water main break.

### What to do:

Replace gaskets and O-rings with chloramine-resistant materials. Routinely replace water filter cartridges. Clean aerators. Flush water heater - contact the manufacturer if plastic particles continue to appear in water.

## Chlorine Smell or Taste

**Cause:** Chlorine and chloramine (chlorine + ammonia) are used to disinfect drinking water. When chlorine interacts with debris and bacteria in pipes, it may cause a stronger odor. Chlorine in water is not considered a health risk by the government and is routinely monitored to ensure levels meet drinking water standards. We consider it to be a long term health risk.

### What to do:

Flush cold water tap for two minutes. Use a pitcher-style or under the sink solid carbon block filter to remove chlorine from your water.

## Metallic Smell or Taste

**Cause:** Metal release in water - newly installed or old plumbing can release metals in water.

### What to do:

Heavy metals are considered a health risk. Flush cold water taps after installing new household pipes or fixtures. After installing new household pipes or fixtures, flush cold water taps for five minutes once a day for three days or until water clears. Use a pitcher-style or under the sink solid carbon block filter to remove metals from your drinking water.

## Sulfur or Sewer Smell

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**Cause:** Bacteria growth in the sink drain or water heater. Debris can build up in the u-shaped plumbing beneath the sink and create an odor at the tap.

### What to do:

Fill a glass halfway with tap water and smell the water in a different room. If the odor is no longer present, the odor is likely from the sink drain, not the tap water. Pour 1/2 cup of bleach or disinfection product down the drain to remove debris and odor. Use a tool like a \$4 drain snake to remove debris ([amazon listing for drain snake](#)) Repeat if necessary. If odor is from the hot tap water, flush the water heater.

## Pink Water Stains

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**Cause:** Biofilm (non-harmful bacteria) that is airborne and spreads easily in warm, moist environments. Can appear as pink, orange or yellow. · Bacteria can grow in water heaters and contribute to biofilm growth on wet surfaces. If the water heater temperature is not maintained at 60°C (140°F), bacteria can grow.

### What to do:

Pink biofilm is not a health risk for healthy individuals. Immune compromised individuals should seek advice from a physician. Disinfect and scrub affected areas. Keep surfaces dry. The presence of biofilm is difficult to permanently remove. During warmer months, routine cleaning may be necessary. Fix dripping faucets and showerheads. Check the temperature of your water heater.

# Choosing a Water Filter

Water Filters come in various styles, and various types of water treatment devices are certified for household use. These devices can remove a broad range of contaminants from water and minimize taste and odor issues. You should choose the type of filter that best fits your needs.

## Tested To NSF/ANSI Standards

Any type of water treatment device that you choose should meet NSF/ANSI standards. Various types of water treatment technologies are available, including granular activated carbon filtration, carbon block filtration, reverse osmosis, ultraviolet treatment and water softeners. Various styles of these devices are available, including point-of-entry (POE) and point-of-use (POU).



We recommend point-of-use filters, such as under the sink mounts or pitcher-style filters that rely on gravity to filter. Reverse osmosis water filters are also good for removing a lot of contaminants but they also strip out essential minerals from the water. It is important to routinely replace filter cartridges according to the manufacturer's instructions. Over time, a filter can accumulate metals and bacteria along with other contaminants.

When purchasing a treatment device, be sure to read their testing data. Many devices sold online are not tested against NSF/ANSI standards by 3<sup>rd</sup> party laboratories. A device may meet NSF/ANSI standards, but this does not mean the filter is tested to remove or reduce every contaminant.

For example, a filter may be tested to meet NSF/ANSI 53 for reducing turbidity, but may not be tested to remove lead. Turbidity in your water is not going to be detrimental to your health, lead will be. Dive into the testing data.

## What are the NSF/ANSI Drinking Water Standards and What Do They Mean?

- **NSF/ANSI Standard 42 | Aesthetic Effects** | Covers systems designed to reduce specific aesthetic or non-health-related contaminants (such as chlorine, taste and odor, and particulates) that may be present in public or private drinking water. (This is the lowest standard and the easiest one to pass for water filter companies. If you buy a water filter that only does NSF/ANSI 42, then it is probably not a very strong filter.)
- **NSF/ANSI Standard 53 | Health Effects** | Covers systems designed to reduce specific health-related contaminants that may be present in public or private drinking water. Standard 53 establishes minimum requirements for material safety, structural integrity, product literature, and health related contaminant reduction performance claims such as lead, cysts, volatile organic compounds (VOCs), and mercury. (Good standard to pass but dig into the testing to see what contaminants were tested. You want to see lead and VOC testing for sure.)
- **NSF/ANSI Standard 401 | Emerging Contaminants & Incidental Compounds** | American national standard that verifies the ability of a water treatment device to reduce up to 15 of the emerging contaminants. This list includes some prescription and over-the-counter drugs, new types of herbicides and pesticides and chemicals used as flame retardants and detergents that have been found at trace levels in drinking water. (Good standard to pass but dig into the testing to see what contaminants were tested)
- **NSF/ANSI Standard P473** | PFOA/PFOS water filters or systems are evaluated on their ability to reduce PFOA and PFOS in drinking water and to meet strict material safety and structural requirements as defined in NSF/ANSI 53. (Good standard to pass, not many filter companies conduct this test due to cost).
- **NSF/ANSI Standard P231** | Microbiological water purifiers are certified for health and sanitation based on the recommendations of the EPA's Task Force Report, Guide Standard and Protocol for Testing Microbiological Water Purifiers. (Not an easy standard to pass, if filters are tested and passed against NSF/ANSI P231, they are probably pretty good filters. Most filters will not be tested against P231 because they will not pass. The only filters at Epic that are tested to this standard are the Epic Nano Water Filter Pitcher, The Epic Outdoor Bottle Filter, and our Epic Universal Refrigerator Filter)

## What is in your water? Here is how to find out.

50  
years

MCLs haven't  
been updated

**For almost 20 years, the EPA has not added any new contaminants to the toxic chemicals covered by the Safe Drinking Water Act.**

The regulatory system meant to ensure the safety of America's drinking water is broken. The inexcusable failure of the federal government's responsibility to protect public health means there are no legal limits for more than 160 unregulated contaminants in U.S. tap water. For some other chemicals, the EPA's Maximum Contaminant Levels, or MCLs, haven't been updated in almost 50 years.

We have found an online resource that collects data from nearly 50,000 local utilities in 50 states (everything that local utilities are required to annually test for and is found in your community's drinking water).

The disturbing truth shown by the data is that when most Americans drink a glass of tap water, they're also getting a dose of industrial or agricultural contaminants linked to cancer, harmful to the brain and nervous system, and correlate to changes in the growth and development of the fetus, fertility problems and/or hormone disruption.

The non-profit Environmental Working Group (EWG) database tells what contaminants are in your water and how the contaminants can harm your health, how your water compares to that in other places and how it measures up against government standards. It's the most comprehensive resource available on U.S. water quality. And the latest update provided by the non-profit EWG, covering utility tests from 2012 to 2017, goes even further. We love this database.

We also love the fact that the EWG scientists combined the latest and best independent research to develop truly safe standards for contaminants in drinking water. Unlike government regulations, the non-profit EWG's standards aren't based on political or economic compromises but rather solely on what's necessary to protect human health, with an adequate margin of safety.

**Because here's the dirty secret about government drinking water standards: Legal doesn't necessarily mean safe.**

The vast majority of the nation's drinking water supplies get a passing grade from federal and state regulatory agencies. But many of the 278 contaminants detected by local utilities' tests are found at levels that may be legal under the Safe Drinking Water Act or state regulations but are well above levels authoritative scientific studies have found to be healthy.

All you need to do is visit this website and put in your zip code. EWG does not require any personal information to show you the report.



**LEGAL DOESN'T  
NECESSARILY  
MEAN SAFE.**

<https://www.ewg.org/tapwater/>

Or in google you can search "ewg tap water database"

## What else can you do to improve your home water quality?

Find your local consumer confidence report and read it: By law, water utilities have to test and report water quality every year. Use EWG's database listed above but also see what your local water utility has found and reported. Keep in mind that local water utilities sometimes use government standards which have not been updated since 2000.

**You can find your local consumer confidence report here.**

[https://ofmpub.epa.gov/apex/safewater/f?p=ccr\\_wyl:102](https://ofmpub.epa.gov/apex/safewater/f?p=ccr_wyl:102)

### Test your water: Water is super local.

A contaminant at your tap water might be different from a contaminant found just a neighborhood over. It's important to know what's in your water and what's going into your body as a result. Really, the only way to get quality information about what's in your water is to use a laboratory. (Not so much TDS Meters or Water testing strips, feel free to check out that [blog here](#) to see why).

We recommend sending your water to a certified lab like [EnviroTestKits](#). We like their Safe Home Ultimate Kit. It is relatively expensive, but it's the best way to find out what's really in your water.

<https://envirotestkits.com/>

## What Other Good Drinking Water Practices Can You Do?

**Fill up your water filter pitcher from the cold water tap and cook with cold water:** Hot water can dissolve contaminants and may also contain metals, sediment, and some bacteria. So by using hot water, you may be exposing yourself to some unwanted particulate and it will likely clog up your filter faster. It is always best to start off with the best available water before filtering. Trying to run hot water to fill up a pot (and we have all done it) before putting it on the stove will just add more contaminants to your food before you eat.

**Flush Your Water Line:** It's a great idea to routinely run cold water taps for two minutes before using your tap water for drinking or cooking. Water that hasn't been used for several hours sits in your pipes at home and while it sits there, metals can leach into your water supply and harmful colonies of bacteria can build up in there. So before you fill up your water filter pitcher or bottle or after an extended time away from home, remember to run your cold water for about two minutes to ensure you bypass all that nastiness.

**Change Your Filters:** Bacteria and metals can build up in filter cartridges. Be sure to follow the instructions on your filter because filtration declines over time as your filter gets clogged. So the strongest your filter will ever be is on the first day of use. Over time your filter will gradually degrade in performance until it is no longer working at all. This is true for all filters no matter the manufacturer. Solid carbon block filters are stronger and remove more contaminants but they tend to filter at a slower rate. **At Epic Water Filters, we only use solid carbon block filters. So our filters are slower but they remove more contaminants.**

A close-up photograph of a person's hand pouring water from a chrome faucet into a clear glass pitcher. The background is a kitchen sink with a tiled backsplash and some green herbs in the foreground.

**Cook With Filtered Water:** Cooking with filtered water is an easy way to improve the taste of your food and the health of your family. Anything cooked in hot water gets exposed to whatever contaminants are in that water. So now you're eating and drinking those contaminants! When water boils, contaminants like chlorine can become airborne and contribute to lower air quality. So just fill up from your pitcher or filtered tap water before cooking up some delicious eats.

**Whole Home Water Filter or Point of Entry Filter (POE):** A whole home water filter is not the best at removing contaminants like lead, fluoride, or TTHMs. This is because a whole home filter (POE) does not have enough contact time between water and the filter. However, this type of filter can still be a great part of a home filtration regiment, and can be one step along your water's way to your mouth. If you are concerned about the chlorine in your bath or shower, a POE filter is ideal for this type of filtration. Looking to get fluoride out of your water? A POE filter is not the one for you. We like Point of Entry filters used in combination with Point of Use (POU) filters like our Epic Smart Shield under the sink filter to create a defense in depth to protect you from drinking contaminated water. This type of setup is expensive to install.

**Replace Old Household Plumbing:** We have found plumbing to be a big potential source of lead and copper exposure. Copper pipes for instance, which are most common in older homes, can contain larger amounts of lead which leech into your water supply. Instead, if you're feeling up to some home improvement, you can replace old copper pipes with lead-free plumbing fixtures that contain 0.25 percent or less of lead, then flush the water through the new pipes for about five minutes once a day for three days in a row, and then drink on feeling good about the improvements to your water quality you've made! It's always a good idea to do a routine check of your piping in the house and make sure there are no cracks or leaks that can get unwanted particulate into your water.

### What's Inside Your Filter?

#### Solid Carbon Block Filter

VS

#### Granulated Activated Carbon Filter (GAC)



Made from compressed activated carbon formed through heat and pressure



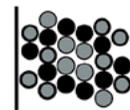
Forces water through a maze of layers of activated carbon that even removes microbial cysts



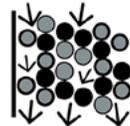
More contact time with water

\$\$

More expensive to manufacture but removes A LOT of contaminants



Made from loose activated granules of carbon



Develops flow channels easily so water can bypass the filter



Less contact time with water

\$

Cheaper to manufacture and removes *less* contaminants



[www.epicwaterfilters.com](http://www.epicwaterfilters.com)

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The content of this whitepaper contains general information and may not be up to date with current plumbing, health or water treatment developments.

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Health guidelines, mentioned on this whitepaper, were established by independent scientists who reviewed the scientific evidence, federal and state legal limits for drinking water contaminants, health advisories and risk assessments, and incorporated them all into the health guidelines referenced here. Please consult the latest water quality report for your neighborhood or home address for more accurate information. It's important to note that only a handful of contaminants are required to be included in annual Consumer Confidence Reports or Water Quality Reports, and that there are hundreds of potentially harmful unregulated contaminants that aren't accounted for by the EPA. Water is very local so it is always recommended that you test your own tap water with a 3<sup>rd</sup> party laboratory.