



RESPECT YOUR WATER: THE IMPORTANCE OF WATER QUALITY IN BREWING

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Water makes up 98% of brewed coffee. This fact certainly gives us pause to wonder if we are just operating a water bar for roasted coffee seeds. Is it possible to have the results in the cup if great quality beans are paired with poor water quality? How can two cafés using the same coffee produce wildly different flavor experiences? Water deserves more respect not only for the sake of quality coffee beverages, but also for the integrity and performance of the equipment used to make them.

Types of Water

The composition of water varies depending on the geography of where it is sourced. Overall quality can also be impacted by the age and construction of the pipes the water is passing through to the tap. Water holds a certain level of memory, meaning it picks up what it can and wants to bond to. This is the reason why filtration and purification processes are necessary for safe consumption and use of water. Understanding the different types of water will help you, as the consumer and operator, to understand how this impacts quality in the shop and provide education to give to your customers who make coffee at home.

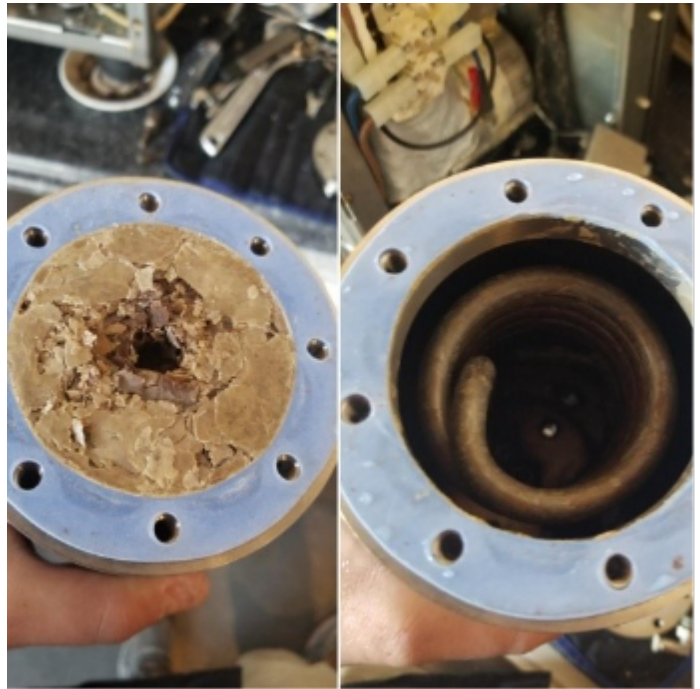
Water that comes out of the tap from a municipal treated water source carries a different composition than a well, which is

supplied by groundwater. Virtually all city water flowing out of the tap is used for general purpose use, including watering the lawn, washing clothes, washing dishes, disposing waste, and fighting fires. Less than 1% of treated water is destined for food and beverage use. Water passing through your local municipality often contains chlorine or chloramines for sanitation purposes. These chemical treatments dull the sweetness, enhance bitterness, and contribute to additional aromatics in the brew. Also consider that treated water within the city will vary depending on the season. Think about the amount of pool water and the elevated levels of chlorine in the warmer weather compared to the colder months. Consider how this affects the daily cup of joe your customers consume, and the equipment used to make those caffeinated beverages.

Well water, on the other hand, contains higher iron, manganese, and other minerals, creating extreme hardness in the water. Hard water creates limescale inside cooking pots used for boiling water for pasta, inside the hot water kettle, and — you guessed it — inside the espresso machine boiler and heating elements. Scale buildup inside of equipment, like plaque buildup within the arteries, causes the machines to lose efficiency in operation and inevitably lead to failure.

What is the Ideal Water for Brewing?

The target of brewing great coffee is using water with structure. Without diving off the deep end with the composition of water, we are going to focus on two key minerals: calcium and magnesium. The balance of these two minerals provides a base for great flavor extraction in coffee. This composition also provides a controlled alkalinity, which buffers acidity that can be damaging to equipment without dulling natural brightness characteristics in the brew. When coffee professionals mention Total Dissolved Solids (TDS), this refers to the amount and nature of the solids that are dissolved in water and the ideal range of mineral composition for brewing. Filtered water provides stability to the flavor structure in the final cup, but not necessarily by removing everything present, both good and bad. Water used for brewing should have a TDS reading of around 75 – 150 ppm for the balanced hardness. This is why testing water in the area is



Boiler with scale buildup (left) and without scale buildup (right).

imperative for setting up the appropriate water filtration and treatment system based on the local water supply. This will not only impact the brews, but also the longevity and operation of the equipment used to produce tasty beverages.

Water Filtration & Treatment

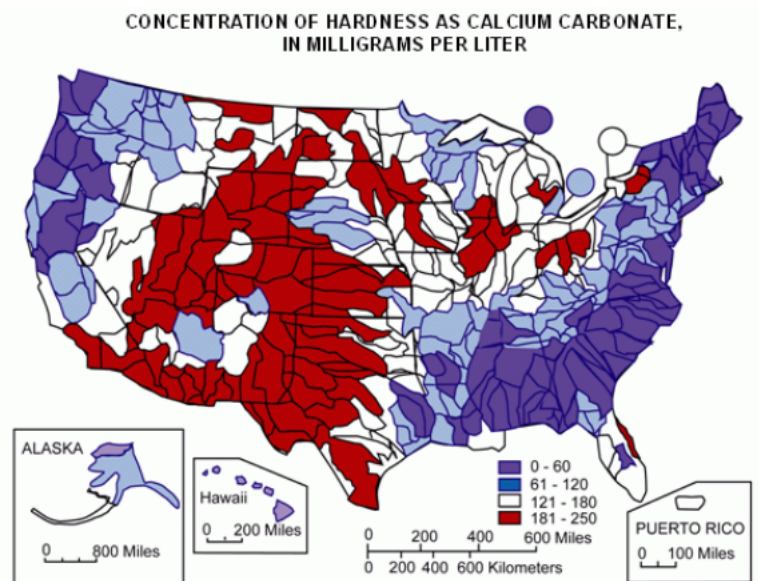
It is important to note that a glass of water filled from the tap is likely not free of forever chemicals, air chemicals, and metal contaminants. These levels can vary depending on the location and water source. To transform problematic water into a high-quality ingredient for brewing, we must consider the water filtration and treatment application. Before running out and purchasing a water filtration system from the local hardware store, it is imperative to get the water supply tested to get your café the appropriate setup installed. Owners also must keep in mind the kind of volume the business will have to ensure they get a filtration system that can keep up with the demand.

A simple carbon filter is sufficient for removing chlorine and other odors but is not designed to purify. The quality of water can vary from region to region throughout the world because of the variability of the groundwater mineral content.

Water softening treatments like Reverse Osmosis (RO), deionization, and distillation processes can help provide a blank slate for your water base. Empty water, which is void of minerals, chemicals, or organics, may be a valuable calibration tool for evaluating coffee at its origin and in labs. However, using this water inhibits coffee from tasting its best in the cup for the end consumer. In other words, building back the desired mineral content from your empty water helps with extraction efficiency, better balanced brews, and the performance of coffee equipment.

The RO process forces water through a semi-permeable membrane, removing up to 99% of harmful contaminants. This process, however, produces roughly 50-65% wastewater and strips beneficial minerals, requiring the operator to have an additional remineralization system for rebuilding the ideal water mineral content for brewing. Newer systems, like the [Bluewater Café Station](#), utilize the purification RO process while producing less wastewater, using continuous recirculation of the water to ensure forever contaminants are removed. This purified water is then reincorporated with the proprietary mineral concentrate for the remineralization of optimal brewing water for your café.

With Fortuna's installation, we recommend the [BWT filter cartridges and filter heads](#) for coffee equipment. We highly encourage scheduling preventative maintenance and water filtration replacement with coffee technicians annually. This will ultimately be more cost effective than having to replace the steam boiler entirely because it has corroded or built up in minerals that are clogging up lines. Don't forget about those



Map of water hardness throughout the United States. The higher the amount of calcium carbonate in water, the harder your water is.

iced coffee drinks, either. We recommend the [Everpure filters](#) for ice machines to ensure you don't have weird tasting ice, which can throw off your drink quality.

For mobile setups or home use, one can still use distilled water for brewing coffee. The distillation process involves boiling water into steam and condensing it back into liquid form. This removes almost all impurities, minerals, and contaminants. The ideal application for distilled water is for use in medical devices; however, you can use it for creating your preferred water composition for brewing by [adding back the desired mineral composition](#) and mixing it thoroughly.

Don't let water be your worst enemy by using an unfiltered source. By maintaining water as your best ally in the café, you will protect your brewing equipment and brew better quality coffee. Make sure you establish a regular schedule of replacing the water filter cartridges and membranes with your coffee technician. These practices will ensure the consistency of tasty coffee and tea beverages served in the shop while supporting the performance of the equipment crafting these drinks.

Do you need water filtration or to schedule an equipment service? Email our tech team at repair@coffeeshopsolutions.com for scheduling.