PENTAIR
EVERPURE

BREWING THE **PERFECT CUP**

Optimizing Water Quality for
Specialty Coffee Operations

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COFFEE IS 98.5% WATER

A few years ago, only the most dedicated barista paid attention to the acidity, the body, and balance of the coffee they brewed. But as the specialty coffee industry has grown and customers have learned more about what makes "the perfect cup," expectations have risen dramatically.

To provide specialty coffee, retailers with the best water treatment solutions possible, know it's important to understand how critical water quality should be when it comes to coffee and espresso. It's a crucial ingredient in the finished product and has a significant impact on equipment performance.

Coffee Quality

How a cup of coffee tastes depends as much on the quality of the water as it does on the beans. The right water treatment system lets specialty coffee brewers keep water chemistry consistent across locations and dial in the ideal mix of minerals for brewing.

Equipment Performance

In addition to reducing energy efficiency, scale buildup and corrosion from unfiltered water can cause significant damage to coffee and espresso brewing equipment. Because of this, the warranties for this equipment often require a certain water quality standard. The right water treatment system can protect this expensive equipment and by extension, a retailer's bottom line.

WATER TESTING AND WHAT IT REVEALS

WATER'S CHARACTERISTICS AND ITS COMMON CONTAMINANTS

Coffee may be 98.5% water, but water isn't just H_2O. Water is a natural solvent, carrying away particles of whatever it encounters along its way. It's these particulates, chemicals, and contaminants that impact coffee quality and equipment performance.

Total Dissolved Solids (TDS)

A combined measure of all organic and inorganic substances dissolved in the water, including minerals, salts, metals and other particulates.

Particulates

Fine sediment, rust and other particles that provide a catalyst for scale buildup and wear on equipment.

Hardness Minerals

The primary water-related problem for coffee brewers and espresso machines is limescale caused by dissolved calcium and magnesium ions. This rock-like buildup leads to reduced performance and increased downtime for maintenance.

Chlorine

While added chlorine makes water safe to drink, it also contributes to corrosion in coffee equipment and can give water an offensive taste and odor.

Chloride

Chlorides are dissolved salts that can impart a salty flavor to coffee at high levels They can also cause corrosion, which may cause damage to the machine over time.

Alkalinity

Alkalinity is water's capacity to neutralize acid. Some alkalinity is desirable to react with acids during the coffee extraction process, but too much has a negative effect on taste and contributes to scale buildup.

pH

Water's balance of acid and alkaline substances can be an indication of whether it will be scale-forming or corrosive.

The first step in finding the right water treatment solution for your customers is conducting a comprehensive on-site water analysis to determine the specific level of particulates, chemicals, and contaminants in their water.

A water analysis is a "snapshot" of water characteristics at the time and place the sample was drawn. Although municipal water reports have value by measuring general safety and potability, they commonly combine samples from multiple sources and may not consider seasonal changes. Therefore, municipal water reports alone may not provide an accurate picture of the water at a specific location.

GIVE YOUR CUSTOMERS THE RIGHT ANSWERS BY ASKING THEM THE RIGHT QUESTIONS

- ☐ How important is beverage quality and consistency to your business?
- ☐ How frequently does your equipment require service, and at what cost?
- ☐ Are water-related problems covered under the equipment warranty?
- ☐ Are you looking for consistent water quality across multiple locations?
- ☐ Do you need specific water mineral content for brewing?
- ☐ Is scale buildup affecting the performance of your water-using equipment?

RECOMMENDING THE RIGHT SOLUTION

OPTIMAL WATER QUALITY FOR COFFEE AND ESPRESSO

Without question, the chemical and physical properties of water have a significant impact on achieving the right body, balance, flavor, and finish of coffee and espresso.

- Low TDS water causes too many coffee oils to be released, resulting in a bitter, oily flavor.
- High TDS water causes too few coffee solids and tea flavonoids to be released, resulting in weak flavor.
- A balanced amount, not too much or too little, of calcium carbonate and alkalinity plays an essential role in coffee extraction during brewing.
- High chloride and sulfate levels are detrimental to coffee balance and flavor and can be corrosive, even to stainless steel equipment.

The Statistics & Standards Committee of the Specialty Coffee Association has determined the following standards for the water used to brew specialty coffee. For a superior quality extraction of coffee solids, the brewing water should have these characteristics:†

Calcium Hardness
50-175 ppm $CaCO_3$

pH
6-8

Alkalinity
40 ppm

Odor
Clean/Fresh/Odor Free

Chlorine
None

Chloride
50 ppm

† These are only general guidelines. For recommendations and requirements specific to your equipment, reference the equipment manual provided by the manufacturer.

FINDING THE RIGHT WATER TREATMENT

Filtration

Filtration technologies trap and remove specific contaminants found in water. Activated carbon media reduces dirt and sediment, scale buildup, and provides chlorine taste & odor reduction. This can help extend the lifespan of your equipment and deliver consistently great-tasting beverages.

Ion Exchange

Customers concerned about hard water or high levels of total dissolved solids (TDS) that can affect valuable steam equipment like espresso machines can benefit from ion exchange or saltless softening technology.

Everpure Claris® systems use ion-exchange resins to remove calcium, magnesium, and other minerals, reducing scale formation and corrosion while extending equipment life and delivering the enhanced beverage quality coffee drinks you deserve.

Reverse Osmosis (RO)

This process forces water through a semipermeable membrane to reduce dissolved minerals from water. In some systems, small amounts of calcium and/or magnesium minerals are 'added back' to the water. The result is optimized water with user-desired mineral characteristics that deliver consistent quality beverages and help protect your equipment.

SELECTING THE RIGHT SYSTEM

UNDERSTANDING SPECIALTY COFFEE OPERATIONS

Once a water quality analysis has been done and the right water treatment technology has been determined, the next step is to determine what size system will meet a particular operation's usage requirements. You'll need to consider:

- Type of equipment used
- Size of connection
- Operational capacity/flow rate required
- Mineral balance desired

UNDERSTANDING SPECIALTY COFFEE OPERATIONS

Espresso Equipment

Everpure Claris® filtration systems, designed for espresso brewing applications, feature saltless ion exchange, integrated carbon filtration and an adjustable bypass head for customized water quality that can help elevate the aroma and blending characteristics of your beverages.

With an Everpure EZ-RO Reverse Osmosis system your specialty coffee customers can take even more control, dialing in the mineral content needed for the perfect shot while also protecting expensive espresso machines from limescale buildup. The size of RO system needed depends on an operation's water quality and product volume.

Ion Exchange System Needed

System	Coffee Usage	6-Month Filter Capacity
EV4339-86 Claris Prime Cartridge/ EV4339-92 Claris Head	5 lbs. (2.26 kgs) per day	Up to 1,255 gallons

RO System Needed

System	Coffee Usage
EV9975-60 EZ-RO 200/5G-Blended Reverse Osmosis System	5-10 lbs. (2.26-4.53 kgs) per day

Drip/Pour-Over Equipment

Pentair Everpure water filtration systems reduce abrasion, clogging and scale buildup in drip and pour-over coffee brewers, and prevent off-tastes and odors in the finished product. Our proprietary Micro-Pure® II filtration media effectively inhibits the growth of bacteria that can decrease filter life. Some Pentair Everpure systems filter out particulates as small as 0.5 micron in size - that's about 180 times smaller than the thickness of a human hair.

What size filtration system your customers need should be based on their operation's flow rate and water use.

Filtration System Needed

System	Brewer Type	6-Month Filter Capacity (1/2-gallon pots)
QL2-OCS[2]	0.5 gpm and under	3,000 pots
QL3-BH[2]	0.5 to 1.0 gpm	6,000 pots
QC7I Single-MH[2]	1.0 to 1.67 gpm	18,000 pots
QC7I Twin-MH[2]	1.67 gpm and above	–

DON'T FORGET THE FILTER

Perhaps the most important and most overlooked component when considering a water treatment system is replacing filter cartridges on a routine basis.

You've helped your customers take their water from ordinary to extraordinary, so help them keep it that way. Stick with Pentair Everpure Replacement Filter Cartridges.

WHY PENTAIR EVERPURE?

Pentair has set the standard for foodservice water quality for over 85 years. Today, that standard is the Pentair Everpure line of water filtration and RO systems. Customers across the globe trust Pentair Everpure for:

- Easy, sanitary quick-change filter replacement.
- A single-source supplier of specialty coffee and espresso water treatment systems, with the breadth of product to provide right-sized solutions for any size operation.
- High-efficiency RO systems that provide significant water savings over conventional RO systems.
- Compact, configurable RO systems with capacities from 50 to 1200 gallons per day, featuring controlled remineralization or blending valves to achieve the right mineral balance.
- Comprehensive water testing services to ensure recommendation of the right system.
- Total Water Management (TWM) to help specialty coffee retailers take their water from ordinary to extraordinary and keep it that way.

Visit **foodservice.pentair.com** or call 800.942.1153 for all the support and assistance you need finding the right water treatment system for any specialty coffee operation.