

Water Treatment Requirements

Improper water treatment is the most frequent cause of espresso machine damage. Water is complex and varies significantly between regions, so take great care to test the water quality at your location and adjust as necessary. Employ the help of a reliable company (Slayer recommends [OptiPure](#) and [BWT](#)) to evaluate your water and recommend and administer treatments.

When evaluating water quality, the two most important factors to consider are calcium carbonate and chloride:

Calcium Carbonate: dissolved mineral that determines the "hardness" or "softness" of water.

The desirable range of hardness is 4-6 grains. Over time, calcium carbonate accumulates as a hard substance, called "scale", and will inhibit the flow of water. Machines subjected to "harder" water (greater than 6 grains) will accumulate scale faster and require maintenance sooner.

Chloride: chlorine combined with an electron from a negatively charged ion.

There are many types of chlorides, including calcium chloride, magnesium chloride, sodium chloride, etc. Chlorides produce salts that impart a strong taste, which alters the flavor of the espresso. Chlorides also encourage pitting corrosion, which causes damage to the machine.

Your water filtration company will create a treatment plan based on your water needs. Choose a filtration company that has solutions for addressing issues related to both calcium carbonate and chloride.

Common treatment options include carbon filtration, ion exchange and reverse osmosis:

Carbon Filtration: process by which water passes through the granular activated carbon, which attracts and retains many chemicals in the water that have an unpleasant taste or odor.

Carbon filtration is necessary for all Slayers. For water with 4-6 grains of hardness, carbon filtration is likely the only necessary water treatment.

Ion Exchange: process by which water passes through an ion exchange system, where where undesirable mineral components are retained and more desirable substances such as sodium are released.

An ion exchange system should be used in combination with a carbon filtration system and is especially beneficial for water in the range of 6-9 grains of hardness. This system is relatively inexpensive and effective in

removing inorganic substances. It does not, however, remove organic substances, such as bacteria.

Reverse Osmosis with Blend-Back Valve (or Remineralized RO): process by which water is forced through a semi-permeable membrane with selective pore sizes at high pressure, then blended with the appropriate amount of desired minerals.

Reverse osmosis may be a good solution for water in the range of 6-9 grains of hardness, but is mandatory for water above 9 grains. When blending minerals with the filtered water, target a TDS (total dissolved solids) value of 75-125 ppm. Experiment with various TDS levels to determine what is ideal.

IMPORTANT: All Slayer espresso machines need to be connected to a carbon water filter to remove chlorine, sediments, odor, and undesirable tastes from the water. This requirement is in addition to any other necessary water filtration systems.

Filtration requirements may vary seasonally. Water should be tested during each season to determine the best filtration plan. Once a filtration method has been selected, take note of the filter's peak capabilities. Contact the equipment vendor to inquire about the life expectancy of the filters, then schedule replacement and re-installation accordingly.

Every time a new water filter is installed, thoroughly rinse the filter before attaching it to your machine or pump. Run water from the supply line through the filter and down a drain for at least 2 minutes. Skipping this step will damage your machine. Damage to or failure of your machine due to inadequately treated water is not covered under warranty.