Coffee Brew Water Analysis Report
May 6, 2020

Prepared for:
Coffee Club

Inspection Property:
545 Ski Way
Ski Land, CO
Unincorporated Grand County

gatesman ENVIRONMENTAL

Contents

Water Quality Results - source water vs. coffee brew water

Location: Coffee Club
Source Water: tap
Sample Date: 5-6-2020, 11:57 am
Analysis Date: 5-6-2020, 12:05 pm

Sampler: Tiffany Gatesman
Brew Water: coffee machine - hot
Sample Date: 5-6-2020, 12:28 pm
Analysis Date: 5-6-2020, 12:30 pm

Contaminant	Chemical	Concentration (ppm) Source Water tap	Concentration (ppm) Brew Water coffee machine - hot	MCL* (ppm) or Accepted Range	MCL or Accepted Range Set by:
Alkalinity	total (as $CaCO_3$)	158.1	115.9	40-75	SCAE
Chloride	Cl^-	28.7	23	250	EPA
Total Chlorine**	Cl_2	<0.2	0.3	250	EPA
Calcium	Ca^{2+} as $CaCO_3$	92.0	78	50-175	SCAE
Magnesium	Mg^{2+} as $CaCO_3$	22.0	18	<75	SCAE
Total Hardness	$Ca^{2+} + Mg^{2+}$ as $CaCO_3$	114.0	96.0	50-175	SCAE
pH	$[H^+]$	5.3	6	6.5-8	SCAE
Potassium	K^+	9.1	6.8	20.0	n/a
Salinity	calculation	47.9	8.3	400	n/a
Sodium	Na^+ calculation	<5	<5	30	EPA
Sulfate	SO_4^{2-}	<5	<5	250-500	EPA
TDS	total ion calculation	237.5	153.8	300	Henden
Total Cation Charge	calculation	2.5	1.4	equal to anion	n/a
Total Anion Charge	calculation	2.5	1.4	equal to cation	n/a
Cation:Alkalinity	total cation / alkalinity	0.8	0.9	1.5-2.5	Henden
CSMR	Cl^- / SO_4^{2-} ratio	5.7	4.6	< 0.5	n/a
Scaling	Langelier-Saturation Index (LSI)	-2.3	-1.8	-2.0 - 2.0	n/a
Scaling	Puckorius Scaling Index (PSI)	7.4	8.0	5 - 7	n/a
Scaling	Ryzner Stability Index (RStI)	9.9	9.5	5 - 7	n/a
Corrosivity	Aggressive Index	10.2	10.0	>10	EPA

**Maximum Contaminant Level (MCL)*
ppm = parts per millions = mg/L
Grey boxes indicate contaminant not tested for

Water Quality Results - source water vs. espresso brew water

Location: Coffe Club
Source Water: tap
Sample Date: 5-6-2020, 11:57 am
Analysis Date: 5-6-2020, 12:05 pm

Sampler: Tiffany Gatesman
Brew Water: espresso machine - hot
Sample Date: 5-6-2020, 12:52 pm
Analysis Date: 5-6-2020, 12 55 pm

Contaminant	Chemical	Concentration (ppm) Source Water tap	Concentration (ppm) Brew Water espresso machine - hot	MCL* (ppm) or Accepted Range	MCL or Accepted Range Set by:
Alkalinity	total (as $CaCO_3$)	158.1	57.3	40-75	SCAE
Chloride	Cl^-	28.7	32	250	EPA
Total Chlorine**	Cl_2	<0.2	<0.2	250	EPA
Calcium	Ca^{2+} as $CaCO_3$	92.0	67	50-175	SCAE
Magnesium	Mg^{2+} as $CaCO_3$	22.0	9	<75	SCAE
Total Hardness	$Ca^{2+} + Mg^{2+}$ as $CaCO_3$	114.0	76.0	50-175	SCAE
pH	$[H^+]$	5.3	5.49	6.5-8	SCAE
Potassium	K^+	9.1	8.7	20.0	n/a
Salinity	calculation	47.9	52.8	400	n/a
Sodium	Na^+ calculation	<5	<5	30	EPA
Sulfate	SO_4^{2-}	<5	<5	250-500	EPA
TDS	total ion calculation	237.5	156.7	300	Hendon
Total Cation Charge	calculation	2.5	1.6	equal to anion	n/a
Total Anion Charge	calculation	2.5	1.6	equal to cation	n/a
Cation:Alkalinity	total cation / alkalinity	0.8	1.5	1.5-2.5	Hendon
CSMR	Cl^- / SO_4^{2-} ratio	5.7	9.7	< 0.5	n/a
Scaling	Langelier-Saturation Index (LSI)	-2.3	-2.7	-2.0 - 2.0	n/a
Scaling	Puckorius Scaling Index (PSI)	7.4	9.2	5 - 7	n/a
Scaling	Ryzner Stability Index (RStI)	9.9	10.8	5 - 7	n/a
Corrosivity	Aggressive Index	10.2	9.1	>10	EPA

**Maximum Contaminant Level (MCL)*
ppm = parts per millions = mg/L
Grey boxes indicate contaminant not tested for

Water Quality Report

**please see Appendix A for description of water quality parameters and mitigation*

A. Review of Shop Brew Plumbing.

1. The shop water source is Municipal.
2. The shop utilizes water for brewing of drip coffee and espresso.
3. There is not a whole shop water filter.
4. There is not a whole shop water softener.
5. Locations of treatment for brewing are located at espresoo machine.
6. Types of water treatment for brewing are filter for reduction of chlorine, taste and odor, formation of calcium carbonate.

B. Source Water Aesthetics & Chemical Description

**Source water is main water source of building/shop*

1. There is not a filter and is not water treatment.
2. The sample was taken from the tap water (Figure 1).
3. The Total Dissolved Solids (TDS) is 237.5.
4. The alkalinity is 158.1 ppm with a pH of 5.26.
5. The water hardness is soft (<120 ppm) at 114 ppm.
6. The water hardness is composed of 92 ppm calcium and 22 ppm magnesium.
7. There is <5 ppm sodium and 9.1 ppm potassium.
8. The Cation:Alkalinity ratio is 0.6. For best brew extraction quality, the ratio should be at least 2 (2:1 ratio of total cations and alkalinty).
9. The CSMR is 5.7 and indicates that the water has moderate potential for galvanic corrosion.
10. The LSI, PSI, and RStI values indicate that the water chemistry has a natural tendenancy to cause Heavy Corrosion (LSI), Corrosion (PSI), and Intollerable Corrosion (RStI) on piping and plumbing fixtures.
11. The Aggressive Index value of 10.2 indicates that the water is potentially moderately aggressive/corrosive to piping and plumbing fixtures.

C. Coffee Water Aesthetics & Chemical Description

**Coffee water is water from coffee machine and any associated water treatment systems*

1. There is not a filter and is not water treatment.
2. The sample was taken from the coffee machine - hot water (Figure 2).
3. The Total Dissolved Solids (TDS) is 153.8.
4. The alkalinity is 115.9 ppm with a pH of 6.
5. The water hardness is soft (<120 ppm) at 96 ppm.

6. The water hardness is composed of 78 ppm calcium and 18 ppm magnesium.
7. There is <5 ppm sodium and 6.8 ppm potassium.
8. The Cation:Alkalinity ratio is 0.89. For best brew extraction quality, the ratio should be at least 2 (2:1 ratio of total cations and alkalinty).
9. The CSMR is 4.6 and indicates that the water has moderate potential for galvanic corrosion.
10. The LSI, PSI, and RStI values indicate that the water chemistry has a natural tendenancy to cause Corrosion (LSI), Heavy Corrosion (PSI), and Intollerable Corrosion (RStI) on piping and plumbing fixtures.
11. The Aggressive Index value of 10 indicates that the water is potentially highly aggressive/corrosive to piping and plumbing fixtures.

D. Espresso Water Aesthetics & Chemical Description

**Espresso water is water from espresso machine and any associated water treatment systems*

1. There is a filter and is not water treatment.
2. The filtration system is OptiPure ScaleX2.
3. The sample was taken from the espresso machine - hot water (Figure 3).
4. The Total Dissolved Solids (TDS) is 156.7.
5. The alkalinity is 57.3 ppm with a pH of 5.49.
6. The water hardness is soft (<120 ppm) at 76 ppm.
7. The water hardness is composed of 67 ppm calcium and 9 ppm magnesium.
8. There is <5 ppm sodium and 8.7 ppm potassium.
9. The Cation:Alkalinity ratio is 1.48. For best brew extraction quality, the ratio should be 2 (2:1 ratio of total cations and alkalinty).
10. The CSMR is 6.4 and indicates that the water has moderate potential for galvanic corrosion.
11. The LSI, PSI, and RStI values indicate that the water chemistry has a natural tendenancy to cause Heavy Corrosion (LSI) and Intollerable Corrosion (PSI, RStI) on piping and plumbing fixtures.
12. The Aggressive Index value of 9.1 indicates that the water is potentially highly aggressive/corrosive to piping and plumbing fixtures.

E. Comparison & Description of Water Sources

1. From source water to coffee water, there is a decrease in alkalinity, hardness, TDS, salinity, and potassium.
2. From source water to coffee water, there is an increase in chloride, chlorine, and pH.

3. From source water to espresso water, there is a decrease in alkalinity, hardness, and TDS.

4. From source water to espresso water, there is an increase in chloride and salinity.
4. All waters are below recommended brewing pH of 6.5. Acidic waters can produce sour taste in brewed coffee.
5. Source and coffee brew water have a Cation:Alkalinity ratio below 2. The optimal ratio is 2 for extraction of organic flavor acids from coffee beans. In general, there should be more hardness than alkalinity in solution (ratio >1).
6. Espresso brew water has an Cation:Alkalinity ratio of 1.5 which is acceptable.
7. From source water to espresso water, there is an increase in chloride and salinity.
8. All waters have a tendency to cause corrosion on fixtures and brewing equipment.

F. Summary

1. The water quality for brewing coffee is acceptable with concerns.
   The water is acidic and tends to be corrosive. This can have negative implications to brew equipment in the future.
   Source and coffee water have low cation:alkalinity ratio. There should generally be twice as much cations (sum of calcium, magnesium, potassium, and sodium) than alkalinity in order for optimum extraction of flavor organic acids. Magnesium is most important.

G. Disclaimer

Water quality parameters were analyzed in field via *RETEGO* © on-site chemical spectrometer instrument. *Gatesman Environmental Consulting & Engineering, LLC* has not been retained to warrant, guarantee, or certify these water quality results in the future because of numerous factors (usage, treatment systems, maintenance, aquifer characteristics, seasonal fluctuations, etc.) which may affect the water quality of the aquifer and tap water. Please refer to *Appendix A* for further details and tested parameters.

Figures

Figure 1. Tap/Source water sample location.

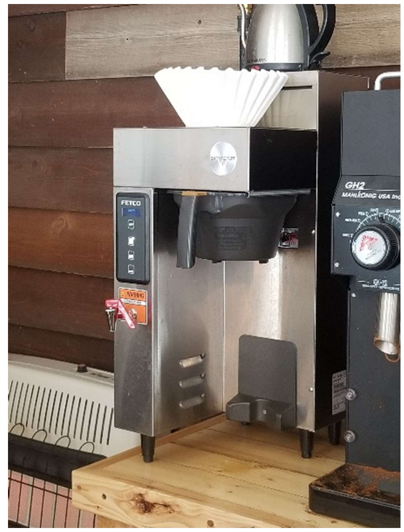


Figure 2. Coffee machine water sample location.

Figure 3. Espresso machine water sample location.

Figure 4. Water filtration equipment for espresso machine.

Appendix A

Water Quality Parameter Descriptions & Coffee Extraction Relationships

Coffee Organic Acids

There are 7 major organic acids in roasted coffee. There are 5 achetypal acids that consist of lactic acid, malic acid, quinic acid, and chlorogenic acid. The other two acids are caffeine and eugenol. Lactic and malic acids form sour notes, citric acid has sweet flavors, and quinic and chlorogenic acids taste pungent and are unpalatable. Caffeine is an aromatic alkaloid acid. Eugenol has a woody note and is also found in wine and whisky. The extraction of these organic acids into coffee brew are dependent on the concentrations of dissolved ions in solution, mainly calcium, magnesium, sodium, and potassium to a lesser extent.

Aggressive Index (AI)

The Aggressive Index is a mathematical value that identifies the potential for water to corrode espresso and coffee equipment including boilers, steamers, as well as other plumbing fixtures. Corrosion See below for values of AI and what it means. Waters with lower pH, alkalinity, and hardness tend to be corrosive. Corrosive water causes corrosion of piping, soldering, and other metal surfaces in brew equipment and plumbing resulting in a dissolution of metals, such as copper and lead, into water as well as poor operation of equipment. Mitigation for corrosive water include treatment and replacement of metal piping to National Sanitation Foundation Drinking Water stamped and approved PVC piping. Water treatment and mitigation can consist of, but not limited to, acid neutralizing filters, Reverse Osmosis (RO), de-ionization, or phosphate filters. These treatments are typically a whole house treatment and placed at point of entry into home (i.e. near pressure tank) to prevent corrosion in home plumbing.

Aggressive Index	AI Classification
>12	nonaggressive
10-11.9	moderately aggressive water
<10	highly aggressive water

Alkalinity

Alkalinity is the capacity of water to buffer against change in pH. Alkalinity is a measurement of the amount of naturally occurring bases and acids in solution and are bicarbonate, carbonate, hydroxide, and hydrogen ions. Calculation of alkalinity is the total equivalence of bases minus total equivalence of acids. These minerals aid in buffering solution from added acids or bases. A low alkalinity has a low buffering capacity, therefore, the water will not resist change in pH. Alkalinity values 50-150 ppm are sufficient at buffering the change in pH. High alkalinity is only an aesthetic problem and can result in the formation of mineral scaling in pipes and water heaters which can slowly shorten the age of appliances and fixtures. Mitigation consists of a decarboniser or Reverse Osmosis (RO) systems. If RO is used, mineral additives may be required or mixing with tap water to increase mineral (hardness) content.

Alkalinity & Coffee

Alkalinity is the parameter in which to measure any carbonates in solution which affect the acidity of brewing. The Specialty Coffee Association of Europe (SCAE) suggests an alkalinity of 40-75 ppm. Low bicarbonate waters tend to be acidic and will form a highly acidic, almost sour taste in brewed coffee. High bicarbonates will form a chalky, bitter, flat flavor due to high neutralizing capacity of the water which neutralizes most of the flavor acids in coffee roasts. For each 100 ppm of alkalinity in brew water, the pH of the coffee will raise 0.22 units. High alkalinity and sodium can retard brewing time and can cause scaling in brewing equipment. Ion exchange will not reduce alkalinity, carbonates, or bicarbonates in solution. It will only reduce the concentration of beneficial hardness ions for flavor extraction and replace them with sodium ions which is not efficient at extracting the organic flavor acids from the roasted coffee bean. Alkalinity greater than 100 ppm $CaCO_3$ can neutralize the acids from extracted from coffee and form carbon dioxide which can, in turn, increase the time of extraction and cause over-extraction of the brew. This phenomenon can be increased if there is high concentration of sodium in solution.

Alkalinity & Espresso

Higher alkalinity in solution can increase the amount of espresso foam formed when brewing as alkalinity can aid in the concentration of CO_2 gas in brewing solutions. Alkalinity concentrations greater than 300 ppm can cause an unwanted foam texture with large bubbles that are not athletically pleasing to consumers. Low alkalinity for expresso brewing can lead to increased corrosion. See the Aggression Index and Scaling for more information.

Chloride

The EPA has a Secondary Maximum Contaminant Level set at 250 mg/L for aesthetics of taste. An increase in chloride can be due to anion exchange, NaCl water softeners, NaCl brine leaks, use of desalinated water, and use of chloride-based coagulants. Chloride can accelerate lead and other metalloid galvanic corrosion by preventing solid formation for protection on the surface.

Chlorine

The purpose of Chlorine analysis conducted by *Gatesman Environmental Consulting* is to test if there a chlorine pre-treatment of the well water. If there is a positive result of chloride, then the bacteria test will be null. There is limited sources of chloride in the environment, so the only sources would be a pre-treatment.

Calcium

Calcium is a natural ion found in waters and contributes to total hardness in solution as calcium carbonate (lime, limestone). Calcium hardness can add to scale forming properties in waters as well as mineral flavors.

Coffee & Calcium

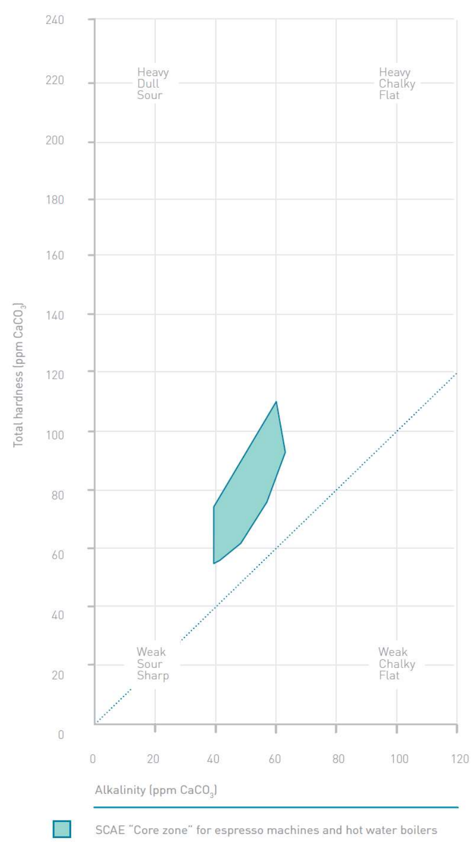
The extraction of organic flavor molecules with calcium is lower than magnesium, however, calcium is very important in coffee brewing. Calcium extracts more flavor molecules sodium and potassium. High calcium can start to limit the coffee brewing process by forming calcium carbonate (lime) scale on coffee and espresso equipment and hot water boilers. See hardness and scaling indices for more information.

Cation/Anion Balance

Or charge balance is a comparison of the total charge of cations (positive ions) to the total charge of anions (negative ions) in solution. The balance should theoretically be equal.

Cation:Alkalinity Ratio

Also known as hardnes:alkalinity ratio. A 2:1 ratio of hardness cations to alkalinity is key for successful extraction of organic flavor acids. The higher hardness cations (calcium and magnesium) will allow for high extraction of flavor acids and the lower alkalinity will limit the buffer capacity and allow for an acidic, but not sour taste in coffee. See the figure below for the Specialty Coffee Association recommendation zone for total hardness and alkalinity relationship that is optimal for yielding high quality brew while also reducing the effects of corrosion and scaling on espresso machines and hot water boilers. The descriptors in the corners of the figure explain the poor flavors from extraction of low and high hardness and alkalinity. Hardness effects the extraction efficiency and alkalinity effects the buffering of coffee acids.



Chloride

The EPA has a Secondary Maximum Contaminant Level set at 250 mg/L for aesthetics of taste. An increase in chloride can be due to anion exchange, NaCl water softeners, NaCl brine leaks, use of desalinated water, and use of chloride-based coagulants. Chloride can accelerate lead and other metalloid galvanic corrosion by preventing solid formation for protection on the surface.

Chlorine

There are limited sources of chlorine in the environment, therefor the only sources are pre-treatment from localized well or municipality water treatment. Chlorine can react with organic molecules and from Disinfection Byproducts (DBP). Black and green teas can form the most of the DBPs compared to other teas and coffee. Most concentrations of these DBPs formed from typical municipal water are under drinking water regulations. Chlorine can also affect the taste and odor of coffee. Carbon filters are the best mitigation for chlorine in waters.

Total Hardness

Hardness is the measure of calcium and magnesium dissolved in water. Hard water may have a better taste, but does not make a good lather and can cause spotting on glasses and dishes. Hard water can cause mineral build in hot water heaters as well. However, the increased amount of calcium and magnesium in the water can also have benefits such as reduce pipe corrosion and other health benefits.

To treat hard water, you can soften you water. The most common mitigation is ion exchange where calcium and magnesium are replace with sodium resulting in a capture of calcium and magnesium (decreased hardness) and a release of sodium (increased sodium). The increased sodium in drinking water can have negative effects on human health and can increase the risk of septic system failure. The increased amount of sodium is highly conductive and can increase corrosion in home plumbing fixtures. This high conductive water can also reduce and disrupt the primary treatment of solids in the septic tank and cause septic drainage failure. Alternatives to softening are potassium carbonate softener or reverse osmosis (RO). The RO softener can also have increased risk in septic system failure because the process yields a large amount of waste water increasing the amount of water into the septic system. This means you will have to manage your septic system more often and it won’t be as efficient. Other alternatives are to bypass softener systems to locations where is it wanted, such as showers, washing machines, etc.; some new appliances come with a water softener as well.

Hardness & Coffee

Hardness effects the extraction efficiency of water. High hardness waters can limit the type of organic flavor acids being extracted during brewing. However, the types of hardness ions will allow for the extraction of a more flavorful coffee brew than soft water. The Specialty Coffee Association of Europe suggests a concentration of 50-175 ppm for prime brew water. Caffeine compounds will stick to magnesium ions during the brewing process. High hardness can cause scaling on brewing equipment which can indirectly affect the brew quality by reducing heat transfer of the heat exchangers and thus affecting the extraction temperature. Calcium hardness contributes to scale (calcium carbonate/lime) more than magnesium hardness.

Hardness (ppm as $CaCO_3$)	Classification
0-60	soft
61-120	moderately soft
121-300	hard
>300	very hard

pH

Acceptable pH ranges from 6.5-8.5 pH units. It is the measure of the activity of hydrogen ions in solution, or how acidic a solution is. A pH of 7 is neutral (distilled water), pH less than 7 is acidic, and a pH greater than 7 is basic. A reading of a pH below 6.5 or greater than 8.5 can cause problems in piping such as corrosion or can indicate other water quality problems that can lead to similar problems.

Coffee & pH

The Specialty Coffee Association of Europe suggests a pH range of 6.5-8 for good brew water.

Potassium

Potassium is a natural occurring mineral in water and is an essential nutrient for human health. High concentrations in drinking water may be from water softener system utilizing potassium chloride for ion exchange instead of sodium chloride or potassium may be from potassium permanganate used as an oxidant treatment in water treatment facilities. Excess potassium in human diets are generally not a concern, however, increased exposure to potassium in diets can result in health effects for people with kidney disease, heart disease, coronary artery disease, hypertension, diabetes, adrenal insufficiency, pre-existing hyperkaliemia, order individuals who have reduced physiological reserves in their renal function and/or individuals who are taking medications that interfere with the normal handling of potassium. Infants may be more vulnerable to high potassium in drinking water as they have limited renal reserve and immature kidney functions. It is suggested that susceptible individuals should seek medical advice to determine if drinking water concentration is safe to consume. Per the World Health Organization, it is not considered necessary to have healthy drinking water contamination level for Potassium.

Coffee & Potassium

Potassium has low binding energy for extraction of organic flavor acids; therefore, potassium is not a concern when determining highest extraction yield for coffee brewing.

Salinity

Is the amount of dissolved salts in solution and is a contributor to TDS and conductivity. Salinity sources are road and sidewalk salt, wastewater (brackish) discharges, brackish leaks in water softening systems, and natural evaporative processes.

Scaling Indices

Scaling indices address the formation of calcium carbonate scale onto the interior of espresso and coffee equipment including boilers, steamers, as well as other plumbing fixtures. Scaling can lead to a decrease in efficiency of heat transfer and clogging of valves and orifices in hot water sections. Scaling indices are referred to as Langelier Saturation Index (LSI), Ryznar Stability Index (RSI), and the Puckorious Scaling Index (PSI). These are indicator indices that describes the likelihood of scale forming or corrosive properties of water. In general, scale can prevent corrosion of piping and fixtures by providing a protective barrier between corrosive waters and metals. LSI, RSI, and PSI Indices with low values tend to be more corrosive because little to no scale will form and the water will have a higher likelihood to corrode metals. Please refer to the table below for more information.

LSI	PSI	RStI	Description
> 2	< 5	< 5	Heavy Scale
0.5 - 2.0	5 - 6	5 - 6	Light Scale
-0.5 - 0.	6 - 7	6 - 7	Light Scale or Corrosion
-2.0 - -0.	7 - 7.5	7 - 7.5	Corrosion
< -2	7.5 - 9	7.5 - 9	Heavy Corrosion
	> 9	> 9	Intolerable Corrosion

Sodium

Sodium sources in drinking water are both anthropogenic and naturally occurring. The most common anthropogenic source are water softeners. Water softeners exchange hard ions (calcium and magnesium) for sodium ions resulting in a decrease in scale forming ions (calcium and magnesium) and an increase in sodium ions. The EPA recommendation for sodium in drinking water is 30-60 mg/L. For individuals with a low sodium diet, EPA advises that sodium in drinking water should not exceed 20 mg/L. See Sodium Adsorption Ratio and Chloride Sulphate Mass Ratio for information on effects of sodium on corrosion.

Coffee & Sodium

Sodium does not bind well with organic flavor acids in coffee, therefore, sodium has minimal effects on flavor acids being extracted into coffee. High sodium and alkalinity can retard brewing time and can cause scaling in brewing equipment. Therefore, it is suggested not use ion exchange (replacement of magnesium and calcium for sodium, i.e. water softening) for treatment of coffee brewing.

Sodium - Anticipated

Anticipated Sodium is a calculation to estimate the amount of sodium added to water system after ion exchange softening. Ion exchange softening exchanges hard water ions, calcium and magnesium, with sodium ions. Two sodium ions will replace each calcium and magnesium ion in solution. Calculations are based on inlet water quality analysis.

Sodium - Excess

Excess Sodium is the difference between recorded sodium and anticipated sodium. The recorded sodium is the concentration recorded form water quality analysis. The anticipated sodium is predicted by the by the amount of the sodium needed to reduce total hardens in solution via water treatment and water softeners. If the Excess sodium is positive, there is too much sodium salt addition to water treatment systems. See Anticipated Sodium and Sodium for further information.

Sulphate

Sulphates are naturally occurring with sources from minerals, soil, rocks, plants, and atmosphere. The EPA has a Secondary Maximum Contaminant Level is 250 mg/L based on taste aesthetics. There is a health-based recommendation for <500 mg/L based on acute laxative effects, especially if mixed with infant formula or an osmotically active ion powdered nutritional supplement. Anaerobic conditions can influence sulfate reducing bacteria and cause microbial influenced corrosion. The bacteria reduce sulfate to hydrogen sulfide (egg odor) that causes corrosion of iron and concrete.

TDS

TDS is the Total Dissolved Solids in water and refers to the amount of dissolved minerals/salts, or ions, in solution. TDS is closely related to electric conductivity (EC) as EC is also a measure of ions in solution. TDS and EC are good indicators for hard water and scaling (high TDS) and corrosive water (low TDS). Very high TDS can indicate saline waters. Low TDS can indicate a solution that is undersaturated with salts and nutrients. The EPA has a Secondary Maximum Contaminant Level set at 500 mg/L for hardness, scaling, staining, colored water, and salty taste.

Coffee & TDS

Ideal TDS for coffee brewing is 150 ppm with an upper limit of 300 ppm. However, it is the type of minerals that makes the total amount of TDS that effect brew flavor.

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