



**Note: The requirement for annual testing of treated water and packaged water has been reinstated. The requirement to implement will not be effective until Jan 1st, 2023, at which point operations must demonstrate that they have a plan for testing, if not previously completed in the last 12 months.**

## **Purpose**

To ensure the quality and safety of treated water, potable water, packaged water, and source water used in product manufacturing.

Note: Specifications and requirements for natural mineral water or spring water can be found in QFS-RQ-195.

## **Scope**

This document applies to all bottlers, co-packers and joint ventures producing and/or distributing for or on behalf of The Coca-Cola Company and includes warehouses & distribution centers, manufacturing operations, office locations and sales.

## **General Requirements**

- 1** Each facility must develop a documented water monitoring plan including source, treated, and packaged water. The monitoring plan must be approved by the OU.
  - 1.1** Potable water must be included in the water monitoring plan when:
    - potable water is produced on-site from a non-potable source or
    - potable water is used for a manufacturing application where the water can directly or indirectly contact product.
- 2** The water monitoring plan must identify:
  - Parameters to be monitored for risk identification, compliance and/or process control
    - Comply with Corporate water parameter specifications in this document (Table 1–Table 5) and/or local regulations, whichever is stricter of the two. This will require the continued review of local regulations to ensure that testing parameters are kept up to date at all times.

**NOTE:** Parameters for process control may vary from plant to plant based on water types (Source, Treated, Potable, Packaged) and on treatment process used

  - Include sample locations where parameter is monitored for risk, compliance and/or process control.
    - Risk monitoring locations may be the source water or at intermediate processing steps depending on whether the origin of the parameter is the source water or due

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to water treatment processing

**NOTE:** Source water monitoring is for the purpose of risk identification and assessment; design, optimize and control water treatment processes. It is essential to understand the compounds present in the source water, which may show concentrations greater than the maximum limits allowed for treated water.

- Compliance monitoring location for treated water is the first sample point after the last water treatment system process
- Compliance monitoring location for potable water is a representative point-of-use (select a single location if potable water is validated for use at multiple process locations)
- Compliance monitoring location for packaged water is either from a sample point immediately prior to filling or finished product in final packaging may be submitted for packaged water analysis
- Process monitoring locations include the first sample point after the last water treatment system process at a minimum, but may include additional locations as necessary to ensure control of the end-to-end water treatment processing
- Frequency of monitoring of each parameter for risk, compliance and/or process control
  - Frequency for compliance is as indicated in this document (Table 1–Table 5), **annually at a minimum for treated and packaged water**. OU can request to increase the frequency based on risk of occurrence, potential variability of results or as mandated by local regulations.
  - Frequencies for risk parameter monitoring are as required by the OU based on the data from the Design and Operations of Water Source (QFS-RQ-197), Source Vulnerability Assessment (SVA, ENV-RQ-235), or probability of occurrence or media attention for emerging contaminants identified by corporate/OU QSE and/or SRA as a global or local reputational risk.
  - Frequency for process control should be established by the standard operational process (SOP) of the facility.

### 3 Water monitoring samples must be analyzed by capable laboratories:

**3.1** Use an OU authorized third-party laboratories for all analysis for compliance and risk parameter monitoring.

**3.2** On-site laboratories must be capable of sampling and analyzing parameters required for routine process monitoring.

### 4 Corporate water parameter specifications are included in:

- Table 1. Process Performance Monitoring Parameters and Specifications
- Table 2. Process Control Microbiological Specifications
- Table 3. Chemical Specifications for 3<sup>rd</sup> Party Laboratory Testing of Treated, Potable and Packaged Water
- Table 4. Microbiological Specifications for 3<sup>rd</sup> Party Laboratory Testing for Treated, Potable and Packaged Water

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- Table 5. General Water Quality Parameters for parameters which do not have a quality or an established health-based specification.

**NOTE:** Some parameters in this table are general, while others are only required to be tested if specific processes are included as part of the water treatment system.

## Source Water Monitoring Requirements

- 5 Source water must be analyzed as required in Design and Operations of Water Sources (QFS-RQ-197) for OU water source approval.

- 5.1 In addition to the source approval analysis, OU has the authorization to require, as needed:

- The third-party analyses for parameters in Tables 3, 4 and 5 annually
- monitoring for seasonally variable parameters which may impact process performance (THMs)
- risk parameters identified during SVA or by corporate/OU SRA
- periodic scan analyses for contaminants of concern identified to be emerging contaminants (PFAS, new pesticides, etc.) and potentially present in the source; OU will determine necessary frequencies of analysis if emerging contaminants are detected

- 6 Source water testing plan must be developed for the facility, including Process Parameters identified in Table 1 and Table 2.

**NOTE:** Additional source water parameter monitoring for Natural Mineral Water designation may be required by local regulations.

- 6.1 Trended data is recommended to be retained by the facility as evidence of water treatment system control. Retention of trended data is recommended to be at least 1 year to understand seasonal variability.

- 6.2 Source water sampling location must be prior to the treatment process, including any disinfection process, to ensure maximum efficiency of the water treatment system.

- 6.3 Frequency of testing depends on the water source and the water treatment system.

- Highly variable source waters as evidenced by fluctuations in turbidity, alkalinity, residual disinfectant concentrations, nitrate concentrations (e.g., water direct from untreated surface water, some municipalities, water blended from multiple sources) may require on-line monitoring or testing every 4-8 hours
- Less variable source waters (e.g., some municipalities, most well waters) may only require testing once per week, or less frequently if a baseline is established allowing for less frequent testing

- 7 The source water data must be compared with treated and/or potable water specifications. Any compound identified in the source water at a concentration higher than required for treated and/or potable water specifications must be identified in water monitoring plans as Source above Specification (SaS)

- 7.1 Parameters identified as SaS must be monitored annually to determine if

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concentration is stable or increasing.

- 7.2 Confirm corresponding annual treated water result for SaS parameter is in compliance to verify water treatment process performance.

## Treated Water Monitoring Requirements

- 8 Test treated water for Table 1 Process Performance Monitoring Parameters and Specifications.
- Analyses performed on-site
    - All parameters except sensory may be analyzed by benchtop facility lab analysis or with on-line real-time instrumentation.
  - Test frequency: Every four hours
    - OU may allow modification of test frequency based on type of water treatment system, validated process performance and availability of on-line, real-time instrumentation. On-line instrumentation can be used to justify reduced lab test frequencies which verify on-line results and check instrument calibration.
  - Sampling point:
    - Water sample for Treated Water quality analysis must be obtained at a sampling point following the last water treatment process as minimum.
    - Locations identified in the monitoring plan based on water treatment process standard operating procedures for process control.
- 9 The manufacturing facility must implement microbiological sampling monitoring program for water, including the microbiological tests in Table 2.
- Analyses performed on-site
    - If the facility does not have on-site capability, the local OU approved 3<sup>rd</sup> Party lab may be used for analyses if sample holding time limitations requirements are met.
  - Test Frequency:
    - Weekly for Coliforms, *E. Coli* and Total Plate Count (TPC)
    - Monthly for Y & M
    - Annually for *Pseudomonas aeruginosa* (to be conducted by an approved third-party laboratory)
  - Sampling point:
    - Analyses performed for Treated Water at sampling point immediately after last Water Treatment System process.
- 10 Test treated water for compliance against the specifications in Table 3 Chemical Specifications for 3rd Party Laboratory Testing of Treated, Potable and Packaged Water, Table 4 Microbiological Specifications for 3rd Party Laboratory Testing for Treated, Potable and Packaged Water and any additional parameters designated by the OU, **annually at a minimum with no more than 16 months between sampling events**,

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**NOTE:** Monitoring frequencies for Radionuclides may be extended to a 3-year frequency, if no radiological anthropogenic activity has been identified within the source water area, and the natural radionuclides compounds are less than 50% of the stated maximum health limit (MHL).

- 10.1** OUs must include any additional parameters and more stringent specifications for TCCC specification parameters required by local regulations for drinking water, potable water and water for product manufacturing in monitoring plans.
- 10.2** OUs may include additional risk parameters identified during SVA or by corporate/OU SRA and periodic scan analyses for contaminants of concern identified to be emerging contaminants (PFAS, new pesticides, etc.) and potentially present in the source.
- 10.3** OUs may require annual testing to occur in specific months to capture potential seasonal variations for water treatment systems using surface water sources, municipal water sources or wells with seasonal water quality.
- 11** Test water for Table 5. General Water Quality Parameters as part of the annual treated water testing. These parameters are to provide a general understanding of overall water quality characteristics that may impact water treatment process selection and operations.

## Potable Water Monitoring Requirements

- 12** Potable water must meet the Corporate Specifications and local drinking water regulatory requirements.
  - 12.1** Frequency of analysis, if monitoring required, is the same as for treated water monitoring.

## Packaged Water Monitoring Requirements

- 13** Test packaged water against the Specifications in Table 3 Chemical Specifications for 3rd Party Laboratory Testing of Treated, Potable and Packaged Water, Table 4. Microbiological Specifications for 3rd Party Laboratory Testing for Treated, Potable Water and Packaged Water and any additional parameters designated by the OU, **annually at a minimum**.
  - 13.1** OUs must include any additional parameters and more stringent specifications for TCCC specification parameters required by local regulations for packaged water.

## Requirements for Out of Specification Results (OOS)

- 14** OOS results must be reported to the OU immediately for any parameter from Table 3 and Table 4.
  - 14.1** OOS results of parameters from other categories should be assessed by the facility to determine if the incident requires elevation of reporting to the OU.
- 15** If the OOS parameter result represents a food safety risk to the finished product, the facility must take immediate actions to mitigate the risk.
- 16** The facility must determine the root cause of the OOS result and take necessary corrective actions to bring the OOS result back within specifications.

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- 17 Test the source water for the OOS parameter to determine if the source water is contributing to the OOS condition.
- 18 Test the OOS parameter at a minimum of every three months until it demonstrates compliance.
- 19 Maintain records of the actions taken.

**Table 1. Process Performance Monitoring Parameters and Specifications**

Parameter	Method	Treated Water	Potable Water
Sensory (Taste/Aroma/Appearance)	SM-PR-441	Normal in all respects: no off-taste or odor or off-color	
Alkalinity (M)	SM-PR-040	85 mg/L as CaCO <sub>3</sub> maximum or as specified in Master Mixing Instructions for specific formulations <i>&lt;50 mg/L as CaCO<sub>3</sub> recommended for package rinsing for PET petaloid bases to prevent stress cracking</i>	specification as required based on validation for specific process applications  <i>&lt;50 mg/L as CaCO<sub>3</sub> recommended for package rinsing for PET petaloid bases to prevent stress cracking</i>  for drinking water: ~20 - 200 mg/L as CaCO <sub>3</sub>
Hardness	SM-PR-460	specification only if listed in master mixing instructions for specific formulations or as required by package rinsing process	specification as required based on validation for specific process applications  for drinking water: normal range is ~10 - 500 mg/L as CaCO <sub>3</sub>
Free Chlorine residual (monitoring required only if source is chlorinated or chlorination is used as on-site disinfection process)	SM-PR-165	0.0 mg/L maximum	0.2 mg/L - 3 mg/L typical concentration validated for contact use applications Taste & odor issues > 2.0 mg/L  5 mg/L maximum

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Parameter	Method	Treated Water	Potable Water
Total Chlorine residual (monitoring required only if source is chlorinated or chlorination is used as on-site disinfection process)	SM-PR-165	0.0 mg/L maximum	1-3 mg/L typical concentration validated for contact use applications  4 mg/L maximum
Chlorine dioxide residual (monitoring required only if municipal source provider uses chlorine dioxide or chlorine dioxide is used as on-site disinfection process)	Standard Methods for Water & Wastewater Method 4500-CIO <sub>2</sub> (external)	0.0 mg/L maximum	Taste and odor issues > 0.2 mg/L  0.2 - 0.4 mg/L typical concentration validated for contact use applications  0.8 mg/L maximum
pH	SM-PR-355	4.9 minimum or as specified in Master Mixing Instructions for specific formulations	Normal range is 6.5 – 9.0
Total Dissolved Solids (TDS)	SM-PR-445	500 mg/L maximum or as specified in Master Mixing Instructions for specific formulations	As required based on validation for specific process applications  500 mg/L maximum
Turbidity	SM-PR-455	0.3 NTU (Nephelometric Turbidity Unit) maximum	0.5 NTU maximum

**NOTE:** Analysis only required for potable water if non-potable water is treated on-site to produce drinking water for the facility or if potable water has been validated for application where potable water is in contact with product or product contact surfaces.

**Table 2. Process Control Microbiological Specifications**

Parameter	Method	Treated Water	Potable Water
Total Coliforms	SM-PR-681 SM-PR-660	< 1 cfu/100 mL	
<i>E. coli</i>	SM-PR 681 SM-PR-660	< 1 cfu/100 mL Only tested if Total Coliform is detected	
Total Plate Count (TPC) at 22°C (+/-2°C)  <b>Note:</b> Operations should also consider incubation at 36 °C (+/- 2°C) in line with ISO 6222:1999. This parameter is under consideration for implementation, but not before June 30, 2023.	SM-PR-685	See Note below on TPC	As required from local regulations or < 500 cfu/mL in drinking water; whichever is stricter.



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Yeast and Mold/Acidophilic Count	SM-PR-688 SM-PR-660	< 10 cfu per 100 mL	As required based on validation for specific process applications  Typically not regulated or analyzed for drinking water
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**NOTE:**

- Analysis is only required for Potable Water if non-potable water is treated on-site to produce drinking water for the facility or if potable water has been validated for use and is used for application where potable water is in contact with product or product contact surfaces.
- For TPC, microbiological reference value is ≤ 150 cfu/100 mL at 22°C (+/-2°C). Manufacturing facilities may adapt the microbiological specifications for TPC depending on the background and context. However, the TPC shall not exceed 2000 cfu/100 mL.

**Table 3. Chemical Specifications for 3<sup>rd</sup> Party Laboratory Testing of Treated, Potable and Packaged Water**

Parameter	CAS No.	MHL (mg/L)	RL(mg/L) <sup>2</sup>
<b>INORGANIC PARAMETERS</b>			
Aluminum	7429-90-5	0.2 (MQL, not MHL)	0.020
Antimony	7440-36-0	0.02	0.0010
Arsenic (Total)	7440-38-2	0.010	0.0020
Barium	7440-39-3	0.70	0.070
Boron	7440-42-8	2.40	0.50
Cadmium	7440-43-9	0.0030	0.00050
Chloride	16887-00-6	250 (MQL, not MHL)	1.0
Chromium (Total)	7440-47-3	0.050	0.010
Copper	7440-50-8	2.0	0.010
Cyanide (Total)	57-12-5	0.070	0.020
Fluoride	16984-48-8	1.50	0.10
Iron	7439-89-6	0.1 (MQL, not MHL)	0.010
Lead	7439-92-1	0.0050	0.00050
Manganese	7439-96-5	0.050 (MQL, not MHL)	0.0050
Mercury	7439-97-6	0.0010	0.00020
Nickel	7440-02-0	0.020	0.0050
Nitrate (as NO <sub>3</sub> <sup>-</sup> )	14797-55-8	45.0	0.50
Nitrite (as NO <sub>2</sub> <sup>-</sup> )	14797-65-0	3.0	0.010
Selenium	7782-49-2	0.040	0.0050
Sulfate	14808-79-8	250 (MQL, not MHL)	1.0
Uranium	7440-61-1	0.030	0.0010



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Parameter	CAS No.	MHL (mg/L)	RL(mg/L) <sup>2</sup>
Zinc	7440-66-6	5.0	0.020
<b>ORGANIC PARAMETERS</b>			
Parameter	CAS No.	MAL (mg/L)	RL(mg/L) <sup>2</sup>
Acrylamide	79-06-1	0.00050	0.00050
Benzene	71-43-2	0.0050	0.00050
Benzo(a)pyrene	50-32-8	0.00070	0.00010
Carbon tetrachloride	56-23-5	0.0040	0.00050
1,2-Dichloroethane	107-06-2	0.0020	0.00050
1,2-Dichloroethene (Total of cis & trans isomers)	540-59-0	0.050	0.00050
cis-1,2-Dichloroethene (cis-1,2-Dichloroethylene)	156-59-2	0.050	0.00050
trans-1,2-Dichloroethene (trans-1,2-Dichloroethylene)	156-60-5	0.050	0.00050
Di(2-ethylhexyl) phthalate	117-81-7	0.0060	0.00060
Dichloromethane (Methylene chloride)	75-09-2	0.020	0.00050
Edetic acid (EDTA)	60-00-4	0.60	0.10
Ethylbenzene	100-41-4	0.30	0.00050
Hexachlorobutadiene	87-68-3	0.00060	0.00050
Nitrilotriacetic acid (NTA)	139-13-9	0.20	0.10
Styrene	100-42-5	0.020	0.00050
Tetrachloroethene (Tetrachloroethylene)	127-18-4	0.040	0.00050
Toluene	108-88-3	0.70	0.00050
Trichloroethene (Trichloroethylene)	79-01-6	0.0010	0.00050
Vinyl Chloride	75-01-4	0.00030	0.00030
Xylenes (Total)	1330-20-7	0.50	0.00050
<b>DISINFECTION BY-PRODUCTS (DBP) AND DISINFECTANTS</b>			
Parameter	CAS No.	MAL (mg/L)	RL(mg/L) <sup>2</sup>
Bromate	15541-45-4	0.010	0.0010
Chlorate	14866-68-3	0.70	0.020
Chlorite	14998-27-7	0.70	0.020
Haloacetic Acids (HAA5 - sum of the five individual compounds listed below) <ul style="list-style-type: none"> <li>• Monochloroacetate (Chloroacetic acid)</li> <li>• Dichloroacetate (Dichloroacetic acid)</li> <li>• Trichloroacetate (Trichloroacetic acid)</li> <li>• Bromoacetic acid</li> <li>• Dibromoacetic acid</li> </ul>		0.060	0.010 for each parameter
Dibromoacetonitrile	3252-43-5	0.070	0.0010
Dichloroacetonitrile	3018-12-0	0.020	0.0010

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Parameter	CAS No.	MHL (mg/L)	RL(mg/L) <sup>2</sup>
Total Trihalomethanes (TTHM: the sum of the four individual compounds listed below) <ul style="list-style-type: none"> <li>• Bromoform</li> <li>• Dibromochloromethane</li> <li>• Bromodichloromethane</li> <li>• Chloroform</li> </ul>		0.080	0.00050 for each parameter
<b>PESTICIDES</b>			
Alachlor	15972-60-8	0.020	0.00010
Aldicarb	116-06-3	0.010	0.00010
Aldicarb Sulfone	1646-88-4	0.010	0.00010
Aldicarb Sulfoxide	1646-87-3	0.010	0.00010
Aldrin & Dieldrin (combined)	309-00-2 60-57-1	0.000030	0.000010
Aminomethylphosphonic acid (AMPA)	1066-51-9	0.9	0.00010
Atrazine	1912-24-9	0.0030	0.0010
Carbofuran	1563-66-2	0.0070	0.0010
Chlordan (Total of alpha and gamma isomers)	5103-71-9 5566-34-7	0.00020	0.00010
Chlorotoluron	15545-48-9	0.030	0.00010
Chlorpyrifos	2921-88-2	0.030	0.00010
Cyanazine	21725-46-2	0.00060	0.00010
2,4-Dichlorophenoxyacetic acid (2,4-D)	94-75-7	0.030	0.00010
2,4-DB	94-82-6	0.090	0.00010
2,4-DDT and Metabolites		0.0010	0.00010
1,2-Dibromo-3-Chloropropane (DBCP)	96-12-8	0.0010	0.00010
1,2-Dibromoethane (Ethylene Dibromide/EDB)	106-93-4	0.00040	0.000050
1,2-Dichloropropane (1,2-DCP)	78-87-5	0.040	0.00010
1,3-Dichloropropene (Total of cis & trans isomers)	542-75-6	0.020	0.00010
Dichloroprop	120-36-5	0.010	0.00010
Dimethoate	60-51-5	0.0060	0.00010
Endrin	72-20-8	0.00060	0.00010
Fenoprop (Silvex/2,4,5-TP)	93-72-1	0.0090	0.00010
Glyphosate	1071-83-6	0.9	0.00010
Heptachlor	76-44-8	0.000030	0.000020

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Parameter	CAS No.	MHL (mg/L)	RL(mg/L) <sup>2</sup>
Heptachlor Epoxide	1024-57-3	0.000030	0.000020
Isoproturon	34123-59-6	0.0090	0.00010
Lindane (gamma-BHC)	58-89-9	0.0020	0.00010
MCPA	94-74-6	0.0020	0.00010
Mecoprop (MCP)	93-65-2	0.010	0.00010
Methoxychlor	72-43-5	0.020	0.00010
Metolachlor	51218-45-2	0.010	0.00010
Molinate	2212-67-1	0.0060	0.00010
Pendimethalin	40487-42-1	0.020	0.00010
Pentachlorophenol	87-86-5	0.0090	0.00010
Simazine	122-34-9	0.0020	0.00010
2,4,5-T	93-76-5	0.0090	0.00010
Terbutylazine	5915-41-3	0.0070	0.00010
2,4,6-Trichlorophenol	88-06-2	0.20	0.00010
Trifluralin	1582-09-8	0.020	0.00010
<b>RADIONUCLIDES</b>			
Gross Alpha particle activity (including radium-226, but excluding radon and uranium) <sup>3,4,5</sup>	12587-46-1	0.50 Bq/L or 13.50 pCi/L	0.111 Bq/L or 3.0 pCi/L
Gross Beta particle activity <sup>3,4,5</sup>	12587-47-2	1.0 Bq/L or 27.0 pCi/L	0.150 Bq/L or 4.0 pCi/L

**NOTE:**

- Test annually for treated water.
- The listed reporting limits (RL) are provided to ensure capability of the 3<sup>rd</sup> party lab and analysis method selected.
- Gross Alpha and Gross Beta do not have to be retested for process change revalidation unless the treatment process is removing these parameters.
- MALs stated for gross alpha and gross beta activity are screening values that trigger a requirement for further investigation. If the measured activity concentrations are below the screening levels of 0.5 Bq/L for gross alpha activity and 1 Bq/L for gross beta activity, no further action is required. If either of the screening levels is exceeded, the concentrations of individual radionuclides must be determined and compared to the guidance levels found in WHO Guidelines for drinking-water, Table 9.2, to determine the effective radiation dose and then determine if further mitigation actions are required.
- Frequency for radionuclide testing may be extended to every three years if no radiological anthropogenic activity has been identified within the source water area, and the natural radionuclides compounds are less than 50% of the MHL.

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**Table 4. Microbiological Specifications for 3<sup>rd</sup> Party Laboratory Testing for Treated, Potable and Packaged Water**

Parameter	Treated Water	Packaged water
Total Coliforms & <i>E. coli</i>	< 1 cfu/100 mL	
<i>Pseudomonas aeruginosa</i>	< 1 cfu/250 mL	
Total Plate Count (TPC)	At 22°C (+/-2°C), reference value is: ≤ 150 cfu/100 mL  At 36°C (+/-2°C), reference value is: ≤ 100 cfu/100 mL  Maximum limit: < 2000 cfu/100 mL	At 22°C (+/-2°C), reference value is: ≤ 100 cfu/1 mL  At 36°C (+/-2°C), reference value is: ≤ 20 cfu/1 mL
Yeast and Mold/Acidophilic Count	< 10 cfu per 100 mL	

**Table 5. General Water Quality Parameters**

Parameter	CAS No.	Method Reporting Limit (mg/L)	Why to Test & When to Test
Ammonium	14798-03-9	0.01	General water quality
Bromide	24959-67-9	0.005	Test in source only needed if water will be ozonated at any point in the water treatment process Test in treated water only if water will be ozonated post treated water sample point
Calcium	7440-70-2	1.0	General water quality
Magnesium	7439-95-4	0.5	General water quality
Potassium	7440-09-7	0.5	General water quality
Silica, reactive	No CAS #	0.1	Needed for source water to identify risk of scaling if RO process will be used; needed for treated water if source water is >20 ppm to understand risk of product flocculation reactions
Silica, colloidal	No CAS #	0.1	Needed for source water to identify risk of issues for membrane processes; needed for treated water if source water is >20 ppm to understand risk of

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Parameter	CAS No.	Method Reporting Limit (mg/L)	Why to Test & When to Test
			product flocculation reactions Needed for source water - may cause filler nozzle scaling
Sodium	7440-23-5	0.05	General water quality
Total Phosphate	No CAS #	0.04	General water quality – phosphate may be added by municipal water suppliers for corrosion control
Total Organic Carbon	No CAS #	0.5	Test to understand potential for microbiological loading on and removal by Granular Activated Carbon Filters
Microcystin-LR	101043-37-2	0.0001	Compare to 0.001 mg/L MHL (see Notes for when to analyze for Microcystin)

**NOTE:**

- Source waters directly from untreated surface waters (lakes, rivers, streams) must be monitored during summer months for harmful algal blooms which may produce Microcystin-LR cyanotoxin.
- If the source water has high nitrogen and/or phosphorus pollutant nutrient loading, algal blooms are likely.
- Monitoring for algal blooms is done by microscopically inspecting untreated source samples on a weekly basis.
- If microscopic analysis indicates presence of algae, analyze for Microcystin-LR.
- The MHL concentration for Microcystin is 0.001 mg/L for acute exposure.

## Definitions

**CAS No:** Chemical Abstracts Services Registry Number of a chemical. Compounds may have different written names for the same molecular structure. The CAS No. is used to ensure the correct compound is analyzed regardless of written name.

**Limit of Detection (LoD):** Lowest concentration at which a compound can be reliably detected and distinguished background interferences in a sample blank.

**Limit of Quantification (LoQ):** Lowest concentration at which a compound can be reliably detected with predefined goals for bias and imprecision. Lowest concentration a method can be validated to identify. The LoQ is typically higher than the LoD, but for some compounds may be equal to the LoD.

**Reporting Limit (RL):** The lowest concentration that a laboratory will report for a test parameter based upon customer, regulatory, or Company specifications. The reporting limit must be at or above the laboratory's LoQ for the parameter.

**Specification:** Limits for parameters / compound concentrations in treated, potable or packaged water established to ensure the safety and quality of water for the intended application.

**Maximum Health Limit (MHL):** The highest acceptable concentration for a parameter

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established based on health risks. Values in the specification tables correspond to Guideline, Provisional Guideline or health-based value as identified in the most recent World Health Organization’s *Guidelines for Drinking-Water Quality*

**Maximum Quality Limit (MQL):** The highest acceptable concentration for a parameter based on impacts to product quality.

**Source above Specification (SaS):** Source water test result is higher than the Company specifications and/or applicable regulations. Concentrations higher than Specification values create a risk to water safety or quality requiring mitigation. Mitigation includes adequate water treatment to reduce concentration and may include increased monitoring frequencies.

**Out of Specification (OOS):** The test result for treated, potable or packaged water does not meet the Company specifications and/or applicable regulations.

**Potable water:** Water not requiring any on-site treatment to be considered safe for drinking. Analysis only required for potable water if:

- non-potable water is treated on site to make potable water for facility drinking water
- potable water has been validated for applications where potable water is in contact with product or product contact surfaces.

**Packaged Water:** Water that is processed and packaged for consumption according to Packaged Water Processing (QFS-RQ-196).

**References**

Design and Operations of Water Sources	QFS-RQ-197
Water Resource Sustainability	ENV-RQ-235
Water for Product Manufacturing	QFS-RQ-180
Packaged Water Processing	QFS-RQ-196
Office Journal of the European Communities, Council Directive 98/83/EC, November 3, 1998, The Quality of Water Intended for Human Consumption	EN
International Bottled Water Association, Bottled Water Code of Practice, Revised December, 2012	IBWA
World Health Organization - Guidelines for Drinking-Water Quality, Fourth Edition, 2011; <a href="http://www.who.int">http://www.who.int</a>	WHO
Standard Methods for the Examination of Water and Wastewater; 23th Edition	AWWA

**Revision History**

Revision Date	Summary of Change
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**Requirements**

**Revision: 1-Mar-2022**

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1-Mar-2022	Published as a result of the KORE 3.0 QSE Governance project. Requirements revised and formatted to minimize duplication, redundancy, and inconsistencies, ensuring clarity of expectations while maintaining fit-for-purpose governance.
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