Sampling Drinking Water for Volatile Organic Compounds (VOCs) and Trihalomethanes (THMs) Analysis using USEPA Method 524.2

Please read and understand this entire procedure prior to beginning any sampling.

[NOTE: The maximum holding time for a chilled, dechlorinated, and HCl-preserved sample is 14 days from sample collection. Begin chilling all samples within 15 minutes of collection to at or below 6 degrees C (≤ 6 °C) by placing the samples in a sample refrigerator or in a cooler with ice. Samples must be maintained at that temperature until analysis. Field samples that will not be received at the laboratory on the day of collection must be packaged for shipment with sufficient ice to ensure that they will be > 0 °C to ≤ 6 °C upon arrival at the laboratory. Samples received outside this temperature range will be rejected.]

SAMPLING PROCEDURE

BEFORE YOU BEGIN

(1) CAUTION: Hydrochloric Acid (HCl) is corrosive and can cause immediate skin and eye damage. It can also cause damage to clothing, equipment, etc. Protective gloves and safety glasses are recommended. Flush with plenty of water if exposed. Return the eye-dropper containing the 1:1 HCl solution with sample submission to the laboratory for proper disposal.
(2) Ascorbic acid (AA) is vitamin C, and is not harmful in small quantities.

SAMPLING STEPS

(1) COLLECT SAMPLE FROM A COLD WATER TAP
(2) Remove the aerator/screen from the tap, if there is one present.
(3) Open the tap (cold only) and allow the system to flush for about 3-5 minutes at full flow until the water temperature has stabilized and the system has been flushed of stagnant water.
(4) Adjust the water flow to a thin gentle stream so no air bubbles are detected.
(5) Repeat steps 6-8 twice, once for each vial.
(6) DO NOT RINSE OUT THE VIAL. Uncap and slowly fill the vial ½ way, making sure not to flush out the dissolving ascorbic acid from the vial. Be sure that the inside of the cap and mouth of the vial do not come in contact with anything but the sample water.
(7) Carefully add 2 drops of 1:1 HCl to the vial using the eye-dropper provided. Finish filling the vial so the water "crowns" at the top of the vial. Cap the vial and invert 3 to 4 times to mix.
(8) Invert the vial again to make sure no air bubbles are present. If a bubble is present open the vial and add additional tap water until a headspace-free sample is achieved.

FINAL STEPS

(1) Record the sampling date, time, site, and name of sampler on the bottle label and the Chain-of-Custody (CoC) Record (FORM-N0013A).
(2) Begin to chill all samples within 15 minutes of collection to or below 4 degrees C (≤ 4 °C) by placing the samples in a sample refrigerator or in a cooler with ice.
(3) When transporting or shipping samples back to Paragon, it is vital that you protect the 40-mL VOA vials from breakage. Pack with an insulation material (Styrofoam, bubble wrap, etc.) around the vials. Also return the eye-dropper containing the 1:1 HCl solution with samples. Sample must be returned on ice to meet temperature requirements.

ACKNOWLEDGEMENT

I hereby acknowledge that I ___ have or ___ have not (check one) collected all submitted samples for Volatile Organic Compounds (VOCs) and Trihalomethanes (THMs) as summarized above. I understand that not collecting samples using the above procedure may jeopardize the validity of any results obtained.

_____ _____
(Signature) (Date)

Submit this document with the completed Chain-of-Custody Record that accompanies samples.

Attachment 1
Reference Information for
Sampling Drinking Water for Volatile Organic Compounds (VOCs) and Trihalomethanes (THMs) Analysis using USEPA Method 524.2

Bottles & Supplies:

PROVIDED ROUTINELY:

(1) Two 40-mL clear glass VOA vials with septa caps containing 25 mg of ascorbic acid (AA) each are required per sample (2 vials/sample).

(2) Small dropper bottle containing approximately 4 mL of 1:1 hydrochloric acid (1:1 HCl). [NOTE: Adding 2 drops of 1:1 HCl to each vial drops the pH to <2 and acts to preserve the sample.]

PROVIDED BY SPECIAL REQUEST ONLY:

(1) Method-recommended "Trip Blanks" should be obtained from Paragon a short time prior to sample collection, and will be analyzed if necessary. (Trip Blanks have a 14-day holding time, and are not required for total THM [TTHM] analysis.)

References:

(1) USEPA. 1995. Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry. Method 524.2, Revision 4.1. Cincinnati: USEPA.

(2) USEPA. 2020. Organic Chemicals, Sampling and Analytical Requirements. Code of Federal Regulations, Title 40, Part 141.24 of Subpart C - Monitoring and Analytical Requirements. Washington: GPO (e-CFR).

Revision History

Rev	Description of Change	Originator	Reviewer	Approver	Source File	Effective Date
0	Initial Release	SLJ-235	n/a	JMS-225	SOP-N0077-R0.doc	05/16/08
1	Reapproval	SLJ-235	n/a	JMS-225	SOP-N0077-R1.doc	05/05/10
2	Document reformatted to be client-facing	EBA-284	n/a	JMS-225	SOP-N0077-R2.docx	03/02/16
3	Clarified note at beginning of procedure to include additional detail about sample temperature requirements.	ECP-259	TMM-287	JMS-225	SOP-N0077-R3.docx	08/08/20