

Disinfection Byproducts – Chlorite (for Systems using Chlorine Dioxide)

SAMPLE COLLECTION PROCEDURE

Reference Method EPA 300.0

Read instructions carefully.

Samples may be rejected if ALL instructions are not followed.

Safety concerns:

- **Caution!** Sample collection requires use of chemicals, handle with care. The 120 mL sample bottles contain chemicals.
- Open containers slowly and carefully.
- Do not rinse out containers.

Sample bottles/preservative:

- Three 120 mL opaque plastic bottles, containing 0.12 mL of 5% ethylenediamine (EDA) solution (preservative).
 - Sample bottles used for chlorite analysis must be opaque to protect the sample from light.
 - The EDA preservative solution is only good for one month.
- Three 250 mL plastic bottles with no preservative added.
- Three polyvinyl chloride (PVC) tubes.
- Three glass Pasteur pipettes.
- Small disposable tank containing inert gas such as helium, argon, or nitrogen. (NOT PROVIDED IN KIT).

Shipping/sample hold time:

- Ship as soon as possible. Samples should arrive at the laboratory within 2 days; lab analysis must begin within 14 days of collection.

Sampling locations:

- Collect the sample from the State-approved or State-accepted location(s) listed on the Chain of Custody. If one of your locations is not in use, contact your compliance officer for direction.

Prior to collection:

IMPORTANT: If using gel packs for cooling material, instead of wet ice, be sure to freeze the gel packs for at least 48 hours prior to sampling. Wet ice is recommended.

Sample collection procedure:

1. **When sampling, bring wet ice (in sealed plastic zip bag) or frozen gel packs to chill samples immediately during sample collection. Try to collect only on a Monday, Tuesday, or Wednesday and ship no later than the next day and to arrive no later than Friday.**
2. Attach a pre-printed label to each 120 mL bottle. If you do not have a pre-printed label, write the following information, using a ballpoint or permanent pen, on the generic bottle label: PWSID, PWS Name, and Sampling Point Description.
3. Remove any attachments on the faucet, including aerator, screens, washers, hoses, water purification devices.
4. Turn on cold water tap and run for 4 to 5 minutes or until water temperature has stabilized, whichever is longer. If using a single lever faucet, make sure the lever is all the way to the cold side. Reduce flow so the stream is steady and the width of a pencil.
5. Reduce the flow of the water so the stream is steady and the width of a pencil.
6. Fill the 250 mL bottle approximately $\frac{3}{4}$ full. Do not allow the sample bottle to touch the faucet or water to splash up onto the faucet.
7. Insert a glass Pasteur pipette, connected to the inert gas tank by the PVC tubing, to the bottom of the bottle and adjust the gas flow to produce a steady flow of bubbles for approximately 5-10 minutes. The chlorine dioxide should be effectively removed from the sample after these 5-10 minutes of sparging. Turn off the inert gas being used and remove the Pasteur pipette.
 - a. Note: Per EPA, sparging must be done at the field site.
8. Remove bottle cap from 120 mL bottle and hold in hand. Do not touch the underside of the cap or the inside of the bottle.
9. Pour the sparged sample into the 120 mL labeled chlorite sample bottle up to the bottom of the neck, taking care not to flush out preservative and making sure the mouth of the bottle does not come in contact with anything other than sample water.
10. Screw the cap back on the 120 mL bottle. Make sure the cap is on securely. Turn the bottle upside down to make sure the water does not leak.
11. Wipe the outside of the bottle dry.
12. Gently mix the sample by turning the bottle back and forth for 15 seconds.
13. Repeat steps 7 – 12 for the remaining two samples.
14. Turn tap off; replace any attachments that were removed from the faucet or sample tap.
15. Upon completion of sampling, immediately (within 15 minutes), place sample in cooler with frozen cooling material. Sample must remain chilled with cooling material until received at the laboratory.

Complete the Chain-of-Custody form using a ballpoint or permanent pen:

1. Print name of the sample collector.
2. Date and Time collected (include a.m. or p.m.).
3. Put your signature on the “Relinquished By” line, including date and time. The date and time are when the sample is put in the return mailer and sealed. If samples pass hands prior to packaging, both parties must sign, date, and time. The first party would put down the date and time of the transfer, and the second party would put down the date and time the sample is packaged.

Shipping and handling:

1. All sample containers must have cooling material (wet ice is recommended) present without evidence of sample freezing.
2. Sample temperature requirements depend on when the lab receives the sample:
 - a. Received 0 - 24 hours after collection: frozen or partially frozen (i.e., containing some solids) cooling material must be present. The temperature of the cooling material must be less than the temperature of the sample(s).
 - b. Received more than 24 hours after collection: frozen or partially frozen cooling material must be present. The temperature of the samples must be between 0.0 and 6.0° C.
3. Shipping samples:
 - a. Add enough fresh, frozen cooling material to the mailing container to maintain appropriate sample temperature as indicated above, with no evidence of freezing.
 - b. Insert the completed Chain-of-Custody lab form in a plastic zip bag and place it inside the shipping cooler.
 - c. Mail the sample as soon after collection as possible. Only collect and mail the sample on a Monday, Tuesday, or Wednesday.
4. Ship to Eurofins Eaton Analytical, LLC, using the return label included in your sample kit. It is recommended that samples arrive at the lab within 48 hours of sampling, with no more than 40 hours for transit.

Courier Service (UPS, FedEx, etc.)

Eurofins Eaton Analytical, LLC
110 South Hill Street
South Bend, IN 46617

If you have questions, call 651-201-4700, or email health.drinkingwater@state.mn.us

Minnesota Department of Health
Drinking Water Protection
651-201-4700
health.drinkingwater@state.mn.us
www.health.state.mn.us

September 2021

To obtain this information in a different format, call 651-201-4700.