

Sample bottles for organic-compound analyses are precleaned and baked at the laboratory and should be received capped. Collect and process samples within processing and preservation chambers, as appropriate, and while wearing disposable, powderless latex or nitrile gloves. In general, change gloves between each collection and processing step and with each new sample type. After collection and processing, check that the information is correct on the bottle label. Place the filled glass sample bottle in a foam sleeve and chill sample to 4°C or below without freezing.

- ▶ Most samples for organic-compound analysis are collected in 1-L amber glass bottles, leaving headspace in case of sample expansion (Appendix A5-A).

- ▶ Samples for glyphosphate analysis are collected in 40-mL vials, leaving headspace in case of sample expansion.
- ▶ Volatile organic compounds are collected in 40 mL baked glass vials without headspace.

Do not field rinse bottles prepared for organic-compound samples.

5.6.1.A Volatile Organic Compounds (VOCs)

Label baked 40-mL amber glass vials as "VOC." Collect three vials per sample for ground water and four vials per sample for surface water.

- ▶ **Do not use tape on the vials.** Tape causes the autosampler to jam.
- ▶ **Do not aerate the sample.** Samples with air bubbles must be discarded.

TECHNICAL NOTE: **Some programs, such as NPDES and NAWQA, require treatment of VOC samples by adding HCl.** To determine the number of HCl drops needed to lower sample pH to ≤ 2 before collecting the sample, collect a test sample toward the end of purging and pour 40 mL of the sample into a beaker or spare VOC vial. Check the pH (use narrow-range pH indicator strips such as pHyrion™) after each addition of 2, 3, and 4 drops. Do not use pH indicator strips that are old or expired.

To collect VOC samples:

1. Insert the fluorocarbon polymer discharge line from the pump or the bailer emptying device to the bottom of the vial; flow should be smooth and uniform (between 100 and 150 mL/min).
 - If the vial was supplied with chemical treatment, do not fill vial to overflowing.

- If no chemical treatment will be added or if the treatment will be added after the vial is filled, allow sample to overflow the vial in order to help purge air from the sample.
2. Slowly withdraw the discharge line from the bottle; slide the discharge line to the side of the vial as the line is about to clear the vial so as to avoid breaking the water surface. Leave a convex meniscus.
 3. Add chemical treatment (HCl) to sample if required by the program and if the HCl is not already in the vial. Add 2 to 5 drops (see TECHNICAL NOTE above) of 1:1 HCl:H₂O, drop by drop, to the filled vial to lower the pH to ≤ 2 . Dispense the HCl from a fluorocarbon polymer dropper bottle. **Do not add more than 5 drops of HCl.**
 4. If residual chlorine is present, add 25 mg of ascorbic acid to the vial in addition to the HCl.
 5. Replace the vial cap immediately. Do not allow the samples to degas. The fluorocarbon polymer (white) side of the septum in the cap should contact the sample.
 6. Invert the vial and tap the vial to release any bubbles. Check carefully for gas bubbles in the sample. If gas bubbles are present, discard the sample vial and resample. If degassing of the samples makes excluding bubbles impossible, record this on the field forms and the laboratory ASR form and report an estimate of the relative volume of bubble(s) in the sample.
 7. Protect the sample from sunlight. Chill and maintain at 4°C or below without freezing.

Semivolatile Organic Compounds 5.6.1.B (Base-Neutral Acids), Pesticides, Organonitrogen Herbicides, Polychlorinated Biphenyls (PCBs)

Label 1-L baked glass bottles as "GCC." Add the laboratory code, if required. Certain analytical schedules require a filtered sample (check with the laboratory for processing and bottle requirements).

1. Fill to the shoulder of the bottle directly from the sampling, splitting, or filtering device.

2. Be sure to leave headspace in the bottle.
3. Chill and maintain at 4°C or below without freezing.

Instructions for field solid-phase extraction (SPE) of pesticides are provided in section 5.3. Field SPE is an alternative method for processing samples for pesticide analysis and should be considered in situations where transporting glass bottles, shipping weight, or holding/shipping times pose a problem. Field SPE samples usually are extracted after most other onsite activities are completed or by a third team member because equipment setup, sample extraction, and equipment cleaning can be quite time consuming.

5.6.1.C Phenols

Label 1-L baked amber glass phenol bottle as "LC0052."

1. Fill the bottle with raw sample directly from the sampling or splitting device.
2. Leave a small headspace in the bottle.
3. Add 2 mL of 8.5 percent H_3PO_4 to a 1-L sample to achieve pH 4, and 10 mL of CuSO_4 to a 1-L sample (100 g/L).
4. Chill and maintain at or below 4°C without freezing.

5.6.1.D Organic Carbon: Total (TOC), Dissolved (DOC), and Suspended (SOC)

Label 125-mL baked glass bottles as follows: for raw samples, "TOC - LC0114"; for filtered samples, "DOC - LC0113."

Raw (TOC) sample:

1. Pour, discharge, or pump the raw sample directly into the sample bottle.
2. Fill to the shoulder of the bottle, leaving a small headspace.

Filtered (DOC) and suspended (SOC) samples:

Refer to the detailed instructions given in section 5.2.2.C.

**Methylene Blue Active Substances (MBAS) 5.6.1.E
and Oil and Grease**

MBAS:

1. Label a 250-mL polyethylene bottle as "RCB."
2. Field rinse the bottle and fill with raw sample.
3. Chill and maintain at 4°C or below without freezing.

Oil and grease:

1. Label a 1-L baked amber glass bottle as "LC0127."
 2. Do not field rinse; fill with raw sample, leaving a small headspace.
 3. Add approximately 2 mL of sulfuric acid to reach a pH <2.
 4. Chill and maintain at 4°C or below, without freezing.
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