

The following replaces “Sampling Equipment” on page 5-5.

Sampling Equipment and Preparation

Total- and dissolved-metals equipment preparation and cleaning procedures are based on EPA Method 1669 (EPA 1996). Metals-in-water sampling materials must be cleaned and prepared by a laboratory that can perform adequate quality-control checks (e.g. equipment blanks). See Table 5.1a for components of a standard metals-in-water sample-collection kit.

Table 5.1a. Components of a Standards Metals-in-Water Sample Collection Kit

| Item | Use | Cleaning | Storage | QC Check |
|--|---|--|--|---|
| Reusable Supplies^a | | | | |
| 250 mL plastic bottles | dissolved-metals blank, dissolved-metals sample, total-metals sample, total metals blank) | HNO ₃ ^a | Dust-free containers ^b | Upon opening a new box of bottles, one in every 100 bottles are checked for contamination by filling with purified reagent water and submitting for analysis by ICP, ICP-MS, and/or CVAFS. The water must not show metals concentrations above the reporting limits. |
| 250 mL glass or Teflon bottles | mercury blank and sample | HNO ₃ ^a | Dust-free containers ^b | |
| Peristaltic pump | dissolved metals sample | Pump modules do not require cleaning. However, nearly all peristaltic pumps contain a metal head and metal controls. Touching the head or controls necessitates changing of gloves before touching the tubing and/or cartridge filter. | | Equipment blank |
| 1 L bottle of blank water | field blank | Metals-free deionized water | Dust-free containers ^b | Used for field and equipment blanks. |
| Teflon tubing (for use with peristaltic pump) | dissolved metals sample | Soaking in 5-10% HCl solution for 8-24 hours, rinsing with reagent water in a clean bench in a clean room, and drying in the clean bench by purging with mercury-free air or nitrogen | Double bagged in clear polyethylene bags, serialized with a unique number, and stored until use. | Equipment blank |
| Disposable Supplies^{c, d} | | | | |
| 0.45 μ metals free cartridge filter | dissolved metals samples | Not required. Purchase certified pre-cleaned and bagged | Dust-free containers ^b | Record lot number. Upon opening a new lot of filters, one in every 100 filters are checked for contamination by filling with purified reagent water and submitting for analysis by ICP, ICP-MS, and/or CVAFS. The water must not show metals concentrations above the reporting limits. |
| Plastic (3' x 3') | ground cloth | Not required ^c | | Equipment blank |
| 60 mL plastic syringe | dissolved metals sample | Not required. Purchase Certified pre-cleaned | Dust-free containers ^b | Equipment blank |
| Powder-free gloves | sample collection | Not required ^c | Dust-free containers ^b | Equipment blank |
| <p>^a Bottles may be used new without additional cleaning if they are certified pre-clean, metals free, and a blank is run from each lot.</p> <p>^b Materials should be stored and transported in dust-free containers, such as plastic bags, included in laboratory-prepared sampling kits</p> <p>^c Materials such as gloves, storage bags, and plastic wrap, may be used new without additional cleaning unless the results of the equipment blank pinpoint any of these materials as a source of contamination. In this case, either a different supplier must be obtained or the materials must be cleaned.</p> <p>^d Disposable supplies—must not be reused. This includes filters, gloves, storage bags, and ground clothes. Reusable supplies—must be properly cleaned before reuse.</p> | | | | |

Modified text starting on page 5-11

Requirements for Collecting QC Samples for Metals in Water

In order to detect contamination in the sampling process, blanks are submitted for analysis. Run a blank for each type of metal sample collected. Field blanks (FB) are required for total-metals samples; equipment blanks (EB) for dissolved metals samples. See Table 5.2 and Chapter 10 for detailed information on field QC samples.

Before using any sampling equipment at a given site, the laboratory or equipment cleaning contractor is required to generate equipment blanks to demonstrate that the equipment is free from contamination. Two types of equipment blanks are required: bottle blanks and sampling equipment blanks.

Equipment blanks must be run on all equipment that will be used in the field. If, for example, samples are to be collected by both syringe and peristaltic pump, then an equipment blank must be run on both pieces of equipment.

Field Equipment Blank Collection Procedure

Collect field equipment blanks—following the same procedure used to collect the ambient sample— at the last site of a sampling day or run. The same tubing (or syringe) and filter can be used to collect an ambient sample. See Chapter 10, “Quality Assurance and Quality Control,” for detailed information on field QC samples.

Blank Water

Take an adequate supply of metals-free deionized water into the field for each field blank collected. Metals-free deionized water is supplied by the laboratory performing metals analysis. Keep the deionized-water containers clean and dust-free on the outside by wrapping them in plastic bags.