

## **Overview:**

Collecting your sample correctly is critical to valid laboratory results. Because each test has unique sampling requirements, your order may contain a variety of bottles. Before use, store bottles in a clean, dry area, avoiding extreme temperatures.

## **Labeling:**

Each labeled container should be completed by filling in the date, time, sampling location, and customer name. Unlabeled containers can be written on using any water-repellent pen such as Sharpie brand.

## **Handling:**

Samples should be protected from light and heat at all times. They should be kept cool (but not frozen), using ice or blue ice, and delivered promptly to the lab. Some tests must be run ASAP after sampling.

## **Technique:**

Only trained personnel should collect samples. For the collection of drinking water, choose a faucet that is closest to the well. The faucet should be clear of debris and free of hoses, aerators, or screens. Control the flow of water to a slow, smooth, steady stream; flush out your sampling source for several minutes. Never overflow the bottles, as they may contain chemicals that must remain in the sample.

## **"Corrosive":**

Some bottles contain concentrated acids or bases. These bottles will have "CORROSIVE" warnings on the label to remind you to handle with caution. Should you be exposed to any preservative, wash thoroughly with water. Eyes should be flushed for a minimum of 15 minutes.

## **Color-Coded Labels:**

Many BSK sample containers have brightly colored labels to make identification of preservatives easy. This helps you easily identify and use the appropriate container for the test(s) you need.

## CHAIN OF CUSTODY AND RELATED DOCUMENTATION

The chain of custody (COC) is the basis for all the work performed on any sample submitted to the analytical laboratory. It represents a basic working agreement or contract between BSK and its customers. **BSK Laboratories will perform only the work specified on the COC** and maintain the confidentiality of services performed with the client specified therein. With that, it is critical that the information contained on the COC is accurate and complete.

The following items on the COC must be included for the laboratory to receive samples and perform testing services:

- **Client information including:**
    - Company Name and Report Contact
    - Address
    - Phone, Fax and E-mail address (where applicable)
    - Sampler Identification with Signature
    - Relinquishing Signature with Date/Time
  - **Sample information including:**
    - Sample Description
    - Date and Time sampled
    - Regulatory identification for reporting to State water quality database
  - **Test Requests:**
    - Specific parameter or,
    - Test Method number
  - In bacteriological testing is to be performed, the following information is also needed:
  - **Bacteriological Information:**
    - Sample Source (Public vs. Private)
    - Sample Type (Routine, Repeat, Replacement, Other)
    - Emergency Contact for positive result, available 24 hours including holidays and weekends.
- **Note: The laboratory is REQUIRED to contact the Department of Health Services if an emergency contact cannot be reached in the event of a positive result for coliform.**

In the laboratory business, thorough documentation is often the difference between results of high utility and those with no value in a regulatory setting. We recommend noting the field conditions while sampling took place, any anomalies that occurred during the collection process, expected result ranges for repeatable constituents, and any other information that might prove useful in relation to the results obtained back from the laboratory.

## SAMPLE PACKAGING AND TRANSPORTATION

The transportation of samples back to the laboratory can be straightforward but does present the opportunity for problems that may be unrecoverable and require resampling. Samples packaged incorrectly are vulnerable to breakage, particularly when large amber glass containers are involved and sample labels can be irreparably damaged if the packaging does not protect the container from water. Finally, should the samples be packaged without sufficient ice or some other cooling media, then the laboratory will likely have to qualify the samples as having been received outside of the required temperature range of 0-6°C (32-43°F).

To ensure sample integrity, BSK recommends the following practices:

- Use only hard-sided ice chests or those insulated Styrofoam containers provided by BSK.
- Package all sample containers in sealed plastic bags - double bag if necessary - to prevent damage to the label from moisture. All documentation MSUT be placed separately in a sealed plastic bag and included in the shipping container.
- Place a limited number of sample containers in each ice chest, allowing adequate room between containers for ice or gel packs. The more weight in the chest, the more likely it will be dropped and bottles broken.
- Do not stack sample bottles on top of each other in the chest and avoid, if possible, putting large amber glass containers immediately adjacent to one another.
- Pack “wet” ice or frozen gel packs in and around all containers placed in the ice chest. BSK recommends the use of “wet” ice especially during the hotter parts of the year. It is by far the most effective means of cooling and maintaining thermal preservation.
- For added assurance and to prevent hold ups in shipment, package “wet” ice in sealable plastic bags to prevent leakage. Commercial carriers will quarantine, open and inspect leaking package uncovered during transportation. Rarely do these arrive on time and in temperature.
- When possible, transport the sample to the laboratory yourself or use BSK’s courier service. Like you, we appreciate the value of those bottles of water and handle them with the degree of care they deserve.

**LABORATORY / SAMPLE COLLECTION VOCABULARY**

**Aseptic:** Refers to a sampling technique use for all bacteriological testing that minimizes or eliminates microbial contamination.

**Bacteriological (BACTI):** General term used to refer to any test that measures determines the presence, absence or enumeration of microbial contamination.

**Chain of Custody (COC):** Legal document that details the testing requirements for a set of samples. All sample submitted to the laboratory MUST be accompanied by a Chain of Custody.

**Extraction:** The process by which the laboratory staff remove contaminants from an environmental sample, transforming them into a media which can be introduced into the laboratory instrumentation. This term is most often associated with the Synthetic Organic compounds.

**First Grab:** Term that refers to the sampling procedures used for the collection of water samples for compliance with the Lead and Copper Rule. Since there is no flushing of the system, a first grab sample is representative of the conditions for water that is allowed to sit for an extended period of time in a distribution system.

**Flush:** Practice of clearing the standing water from the distribution system prior to sampling for water quality parameters. The goal of flushing the system is to collect a sample representative of the source water and not the distribution system.

**Headspace:** A reference to the air gap left at the top of a sample container once a sample is collected. When sampling for volatiles, the goal is to collect a sample that no headspace or zero headspace remains in the sample container.

**Hold Time:** The maximum allowed time between the collection of a sample and the preparation or analysis of a sample. Hold times vary by method, by matrix and by analyte. Hold times can often be extended through the use of chemical preservatives.

**Purge and Trap:** An analytical technique used in the analysis of volatiles. A sample is purged with an inert gas such as helium or nitrogen in a closed system. The volatile components are carried out of the sample matrix and captured or “trapped” via an absorbent material. The material is later heated to drive off the trapped components and introduced into the analytical instrumentation.

**VOA Vial:** A special sample container used for the collection of samples for volatiles analysis. These vials use a cap and Teflon based septa to hermetically seal the sample until the time of analysis. The analytical instrumentation pierces the septa and extracts the sample under closed conditions.

**Zero Head Space:** The sample collection requirement for volatiles analysis. Samples collected in VOA vials must be sealed in such a way that no airspace exists in the vial above the sample.