Bottle Selection and other Sampling Considerations When Sampling for Per- and Poly-Fluoroalkyl Substances (PFAS)

What type of samples does this guidance apply to?

This guidance applies to any sample taken for the analysis of per- and poly-fluoroalkyl substances (PFAS). This guidance is applicable to any liquid, soil, sediment, and tissue matrix.

Why do we need special sampling guidance for this?

PFAS are a class of manufactured compounds that are extensively used to make everyday items more resistant to stains, grease, and water. These chemicals have been used in a variety of industrial, commercial and consumer products. Some of these products could be present and/or used during a routine sampling event, such as plastic bags and bottles, waterproof clothing, detergents, and waterproof pens and paper. Because the EPA has established health advisory levels that are very low concentrations (70 parts per trillion) for two PFAS, perfluorooctanoic acid (PFOA) and perfluorooctane sulfonate (PFOS), the use of these products could possibly contaminate the samples during sample collection. This includes what is used to prepare the sampling site, what is used to collect the sample, what is used to clean the sampling equipment, what the sample is collected in, and how the sample is shipped. This guidance will provide steps to take to help you avoid these potential sources of contamination.

What type of bottle do I need to collect my sample in?

All samples to be analyzed for PFAS must be collected in a high density polyethylene (HDPE) container with an unlined plastic screw cap, except as stated below for drinking water samples by Method 537 for the method specified short list of PFAS. Polypropylene bottles may be used in this instance only.

Why can't we use the polypropylene bottles that are recommended in the drinking water method (EPA Method 537)?

EPA Method 537 is used for the analysis of a short list of PFAS. Polypropylene bottles can be used for this short list of analytes by this method. While some of these analytes do adsorb onto the polypropylene container, their adsorption is reversed by the rinsing of the sample bottle, which is required by the method. Other analytes have not been studied and other methods do not require the sample bottle to be rinsed. Therefore, as a precaution, use of HDPE bottles for all other PFAS sample collection is required.

What do we need to avoid using during sampling events?

Below is a general list of prohibited materials. Specific guidelines are determined based on project requirements.

PROHIBITED Materials and Equipment
Teflon®-containing materials, when possible, should be avoided (e.g., tubing, bailers, tape, and plumbing paste). In cases where Teflon®-containing materials are unavoidable, ensure adequate purging is performed prior to sampling (e.g., in-well pumps) and/or rinse blanks are collected prior to sampling.
LDPE or polypropylene containing materials (e.g., bags or containers used to transport samples)
Paper products such as waterproof field books, plastic clipboards, binders, spiral hard cover notebooks, sticky notes or glue materials
Markers
Chemical (blue) ice packs
Decontamination soaps containing fluoro-surfactants such as Decon 90
Water that is not verified to be "PFAS-free" to be used for trip and decontamination blanks and decontamination processes
Water resistant, waterproof, stain-treated clothing or shoes including Gore-Tex™ and Tyvek® materials

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Is there anything else I should consider as a potential source of contamination?

Yes. There is some documentation that indicates that some personal care products, as well as food and drinks, may introduce additional ways your sample may get contaminated. Therefore, these additional precautions should be taken:

- Field personnel should not use cosmetics, moisturizers, hand cream, or other related products.
- Many manufactured sunblock and insect repellents contain PFAS and should not be used.
- No food or drink shall be brought on-site, with the exception of bottled water and hydration drinks.

What can we use for our sampling event instead?

Below is a general list of recommended materials. Specific guidelines are determined based on project requirements.

Recommended Materials and Equipment
HDPE and silicon Materials include: tubing, bailers, tape, plumbing paste
Acetate liners for direct push technologies
Nitrile gloves – change often
Loose paper with Masonite or aluminum clipboards
Pens
Bags of ice
Alconox® or Liquinox®
Laboratory supplied and verified "PFAS-free" water to be used for trip and decontamination blanks and decontamination processes
Cotton construction is recommended for field clothing and should be laundered a minimum of 6 times from time of purchase due to possible PFAS related treatments. Fabric softener must be avoided. Rain gear should be made from polyurethane and wax-coated materials.