MassDEP Drinking Water Program
One Winter Street, Boston, MA 02108 June 2021

Field Sampling Guidelines for PFAS

Using EPA Method 537 or 537.1

Please read entire instruction sheet prior to sampling.

Also, view the MassDEP video on how to conduct PFAS sampling at: https://youtu.be/zrwhwSI-R9M

Sampling for per- and polyfluoroalkyl substances (PFAS) using EPA method 537 or 537.1 can be challenging due to the prevalence of PFAS compounds in consumer products. Many materials normally used in field and laboratory operations contain PFAS and cannot be used in sampling for PFAS: e.g., tubing, sample containers, and sampling tools. In addition, many consumer goods, such as water-resistant jackets or fast food wrappers brought to a sampling site may contain PFAS that can also contaminate samples.

Field Clothing and Personal Protective Equipment

- Do not wear clothing or boots containing Gore-Tex®.
- Wear new nitrile gloves.
- Wet weather gear should be made of polyurethane and polyvinylchloride (PVC) only.
- Wear safety boots made from polyurethane and PVC.
- Do not use materials containing Tyvek® or polytetrafluoroethylene (PTFE), also known as Teflon®.
- Do not use fabric softener on clothing to be worn in field.
- Do not use cosmetics, moisturizers, hand cream, or other related products the morning of sampling.
- Do not use prohibited sunscreen or insect repellant. See *Do's and Don'ts* table below for more information.

Food Considerations

No food or drink allowed on-site with exception of bottled water.

Field Equipment

- Must not contain Teflon® (aka PTFE) or low-density polyethylene (LDPE) materials.
- All sampling materials must be made from stainless steel, high-density polyethylene (HDPE), acetate, silicone, or polypropylene.
- No waterproof field books can be used.
- No plastic clipboards, binders, or spiral hard cover notebooks can be used.
- Sharpies® and permanent markers not allowed; regular ball point pens are acceptable.
- Keep PFAS samples in separate cooler, away from sampling containers that may contain PFAS.
- Coolers filled with regular ice only - Do not use chemical (blue) ice packs.

Sample Containers

- All sample containers must be polypropylene.
- Caps must be unlined polypropylene (no Teflon®-lined caps)

Equipment Decontamination

- Have "PFAS-free" water on-site for decontamination of sample equipment. No other water sources are to be used.
- Only Alconox® and Liquinox® can be used as decontamination materials.

Sampling Protocol

If sampling for other contaminants, sample for PFAS first. Other containers for other methods may have PFAS present on their sampling containers. Use a dedicated cooler for PFAS samples.

Before sampling, in order to limit contamination, the sample handler must wash their hands and wear new nitrile gloves when filling and sealing the sample bottles.

For a PFAS sample set you will need:

- 2- or 3- empty 250 mL sampling bottles preserved with 1.25 g Trizma®.
- 1- or 2- field blank (FRB) – empty 250 mL bottles unpreserved.
- 1- or 2- 250 mL bottles with reagent water for field blank use, preserved with 1.25 g Trizma®.
- Optional: Up to 4- empty 250 mL sampling bottles for QC preserved with 1.25 g Trizma®.

Each sample set requires two or three sample containers collected from the same sample location at the same time. The lab may provide additional empty, preserved sample containers for quality control purposes for one sampling location. These may be labeled Matrix Spike (MS), Lab Fortified Sample Matrix (LFSM), or Quality Control (QC). **They should be filled with sample from one location, just like a regular sample, and clearly indicated on the COC at which location the QC volume was collected.**

Field Blanks

Field blanks are required and allow for the identification of interferences/contamination introduced during sample collection and handling. Each sampling location needs a field blank, but close together sampling locations can share the same field blank. These containers are provided by the laboratory.

Field blanks must always be collected and must be analyzed if any PFAS compounds are detected in the corresponding field sample. While field blanks can be analyzed at the same time as field samples, their analysis can be put on hold until after the field sample has been analyzed.[1]

Field Blank Instructions

[1] Delaying field blank analysis will extend the turnaround time for a final report. Note that reports are due to MassDEP by the 10th day of the month following the monitoring period. Having to wait for the laboratory to analyze a field blank may result in the PWS missing the reporting deadline, incurring a violation.

1. At the sampling location, locate the reagent water container from the bottle order. The reagent water container will be pre-filled with PFAS-free water that has been preserved with Trizma®.

2. Locate the empty bottle labeled "field blank."

3. Handle the bottles as detailed in **Sampling Instructions** below. Open the bottles and transfer contents of the preserved reagent water container into the field blank bottle.

4. The Field blank needs to be noted on the Chain of Custody (COC). **Clearly indicate on the COC which field blank goes with each sample location.**

5. Both the empty reagent water container and the filled field blank bottle must be returned to the lab in the cooler along with the samples taken.

Sampling Instructions

Samples collected from active drinking water sources should be collected during normal operating conditions.

1. Each sampling event requires two or three containers (one sample and one or two field duplicates).

2. Before sampling, remove faucet aerator.

3. Avoid contact with any Teflon® tape or pipe thread paste on pipe fittings or sampling tap threads on the water supply discharge pipe.

4. Run water for five minutes to flush, slow water to flow of pencil thickness to avoid splashing when filling.

5. Open sample bottle; do not place the cap on any surface and avoid all contact with the inside of the sample bottle and its cap.

6. Fill sample bottle completely to neck of bottle or a fill line if marked on the sample bottle and do not overfill (or allow preservative to escape.)

7. After collecting the sample, cap the bottle securely and agitate by hand (approx. 5 times) until preservative is dissolved. Do not re-open bottle from this point forward.

8. Place each bottle in a sealed ZipLoc® bag, and place in a cooler that only contains PFAS samples in it. (No other sample types allowed.)

9. Ensure COC and all labels on bottles contain the required information, including sampling date and time and name and signature of the sampler. For drinking water samples, use sample location names found on the Public Water Supply Sampling Schedule.

10. The samples, field blank and empty reagent blank containers are to be in the ice-filled cooler (do not use blue ice packs) and returned to the laboratory. Note sample temperatures on the COC upon receipt in the lab. Samples should be kept at 4°C ±2. Sample temperatures must not exceed 10°C during first 48 hours after collection. Hold time is 14 days. Use enough ice so that the samples remain sufficiently cold until they are received by the lab. Adequate ice is especially important when collecting samples during hot weather or using overnight sample shipment.

Do's and Don'ts

Detection of PFAS at very low levels can be influenced by materials that are present at the sampling site, materials used by the sample collector, or sample container handling practices. The following table provides a summary of items that are likely to contain PFAS and therefore should not be used by the sample collector at the sampling site.

Category	Prohibited Items	Allowable Items
Pumps and Tubing	Teflon®, polytetrafluoroethylene (PTFE) and other fluoropolymer containing materials	High-density polyethylene (HDPE), low density polyethylene (LDPE) bladders , silicone tubing, or peristaltic pump or stainless steel submersible pump
Decontamination	Decon 90	Alconox® or Liquinox®, potable water followed by deionized rinse
Sample Storage and Preservation	LDPE or glass bottles, PTFE-or Teflon®-lined caps, chemical ice packs, and waterproof labels	Laboratory-provided sample container -preferred; or, polypropylene bottles, regular "wet" ice, bubble wrap, passive diffusion bags, and hydrasleeves
Field Documentation	Waterproof/treated paper or field books, plastic clipboards, spiral bound notebook, Sharpie® and permanent markers	Plain paper, metal clipboard, pens, ZipLoc® resealable plastic storage bags, aluminum foil, Post-It® and other adhesive paper products, water-level tape
Clothing	Clothing or boots made of or with Gore-Tex™ or other synthetic water resistant and/or stain resistant materials including polyethylene fiber suits, Tyvek® material, waterproof boots	Synthetic or cotton material, previously laundered clothing (preferably previously washed greater than six times) without the use of fabric softeners
Personal Care Products (on day of sample collection)	Cosmetics, moisturizers, hand cream, sunscreen, insect repellants and other related products	Sunscreens: Alba Organics Natural, Yes to Cucumbers, Aubrey Organics, Jason Natural Sun Block, Kiss My Face, Baby-safe sunscreens ('free' or 'natural') Insect Repellents: Jason Natural Quit Bugging Me, Repel Lemon Eucalyptus, Herbal Armor, California Baby Natural Bug Spray, BabyGanics Sunscreen and Insect Repellents: Avon Skin So Soft Bug Guard-SPF 30
Food and Beverage	Pre-packaged food, chemical ice packs, fast food wrappers or containers	Resealable plastic storage bags, aluminum foil, bottled water or hydration drinks

NOTE: Brand names are included for illustration only, and do not imply endorsement of the product.

Please contact MassDEP Drinking Water Program with additional questions or concerns.
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