



Trace Metal Sampling

All samplers contaminate or distort in some way:

- Plastics may leach metals from ultraviolet inhibitors, metal-organic plasticizers, (rarely) metal catalysts.
- PTFE has a rough porous surface that traps ions and fine charged particles. Errors may occur in your first sample.
- Metal and glass may dissolve into the sample, usually at the nanogram/ liter level.
- The sample may react with the sampler, causing errors.

Are you using the right sampler? Is the sampler clean? Have you run a test blank? Selecting a particular sampler may depend upon the material(s) sought or environment being sampled.

Alconox is suggested to remove oil and most soils. A 3% acid solution (HCl or HNO₃) will remove detergent. Rinse with distilled water. Air dry.

Run a test blank by filling the sampler with distilled water, holding for as long as the sample will be held, and running test analysis.

Preparing Water Samplers for Use

General cleaning

For most sampling, soak in mild detergent and warm water (to 150° F/ 65° C). Rinse with tap, then distilled water. Soak in mild laboratory detergent such as Alconox and warm water. Rinse with distilled water, rinse again with 3% HCl or HNO₃, then with triple distilled water. Repeat. Store when completely dry in clean, sealed plastic bag.

Trace level decontamination for plastic samplers

Clean as above, then soak up to 8 hours in warm 1N HCl solution (3 N max), rinse in distilled water. Do not use alcohol, ketones or chloroform on acrylic.

Removing grease and oils

Wash with mild detergent to remove grease and oil. Scrub soiled area prior to using organic solvents such as acetone, alcohols or chloroform. Do not use these solvents on acrylic. Use alcohol only on Lexan, PVC and CPVC.

Sterilizing samplers

Autoclaving: Clean and rinse with distilled water before autoclaving to prevent baking contaminants. Metal, glass, PTFE, polycarbonate may be autoclaved. Do not autoclave polyurethane, PVC, CPVC, acrylic, CAB.

Gas sterilization: The above materials can be gas sterilized using formaldehyde gas or ethylene oxide.

Chemical sterilization: In general all the above can be sterilized with commonly used disinfectants.

Trace metal or organic measurement

Fill sampler with distilled water for same length of time you would fill with sample. Analyze the distilled water.

Rust stains on stainless steel

Stainless steel devices should be rinsed at once with fresh water after removal from salt water. To remove rust, soak in concentrated HNO₃ for 3-4 hours.

Storage of samplers

To avoid mildew, corrosion, and odors, samplers should not be stored in foam-lined cases unless very dry. Other samplers should be thoroughly dry before storing in a clean, sealed, plastic bag or carry case.



How to Maintain Water Bottles

1. Store hung from a hook, upright, with all valves open. Storing when closed may damage valves.
2. Guard the sampler from blows on cylinder ends (this may knock them out of round, causing leaks).
3. Worn or age-hardened seals should be immediately replaced to prevent leaks
4. To avoid damage during use, carry the sampler in a case. Acrylic bottles are susceptible to cracking if dropped or struck.