My PFAS Testing Cheat Sheet

PFAS testing in food is uniquely vulnerable to contamination and false results – because PFAS can come from the instrument, consumables, water, and even handling. Use this cheat sheet to reduce background, avoid false positives and false negatives, and build confidence at low-ppt levels.

Do dedicate and adapt instruments – Use PFAS-only LC/MS/MS setups, with delay columns and nonfluoropolymer components to prevent carryover and background noise.

Don't reuse environmental methods as-is – Methods like EPA 533 are not optimized for food and are often too slow and labor-intensive.

Do qualify all materials and consumables – Use LC/MS-grade solvents, check each new lot (or use those with CoAs), and pretest reagents, tips, tubes, and cartridges before use.

Don't leave fluoropolymer parts in your LC flow path – Unmodified tubing and seals can leach PFAS and cause coelution with analytes.

Do run blanks rigorously – Begin each batch with instrument and reagent blanks (and internal standard blanks if applicable); after idle periods, run extra blanks to clear memory effects.

Don't trust consumables blindly – Solvents, water, additives, pipette tips, and tubes can all be contamination sources; verify them before use and keep records.

Do manage water use carefully – Minimize water in sample prep, flush lines before collecting, and expect low-ppt background even with ultrapure water.

Don't mishandle or store samples improperly – Avoid glass containers; for aqueous samples in polypropylene, warm and vortex after cold storage, and never touch cap interiors or reuse bottled water.

Do customize chromatography for matrix effects – Tailor LC gradients to each food matrix and select appropriate internal standards to separate isobaric interferences (e.g. bile acids from PFOS).

Don't panic – PFAS background will never disappear completely; trace the source, separate real signals from system noise, and act methodically.

Why food is different

Food matrices vary widely and introduce interferences not seen in environmental samples

Fatty acids and bile acids cause interferences, including suppression and charge competition

Some bile acids are isobaric with PFOS, so MS alone cannot separate them

Only matrix-specific cleanup and chromatographic separation ensures reliable quantitation

Blank run checklist

A minimum safeguard against false positives

Start of every batch

- ☑ Instrument blank (no injection)
- ☑ Reagent blank
- ☑ Internal standard blank (if applicable)

After overnight/idle time

- ☑ Run 1–2 extra blanks (PFAS "memory effect" can reappear)

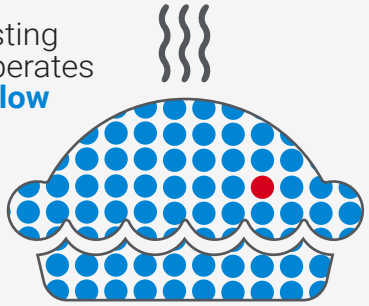
Troubleshooting in 10 seconds

If you see PFAS peaks…

In blanks and all samples → check system, mobile phase, or instrument background

Only in a few samples → check consumables or handling

PFAS food testing often operates **at or below 10 ppt**



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