

PFAS and other contaminants leaching into an analysis – Tips & Suggestions

Have you ever run across a situation where Teflon-like compounds were contaminating an analysis? PFAS (PerFluoroAlkoxy Substance) is leaching out of something from pipette to HPLC and I have no idea who uses this compound and who doesn't.

This is not easy to answer. In an HPLC system more than one single part can be the reason for the contamination. I once had a case where a customer with MS-MS had similar problems. An unidentified substance was contaminating the samples and they had ghost peaks all the time. After many months they figured out, that the ghost peaks were coming from the solvent filters and frits in the column. But SS parts should not give any kind of plastic like contamination.

The reason in the end, as we figured out, all these SS parts were packed in PP-bags. Standard PP, which are used all over the world in laboratories, contain softeners and stabilizers, they leach out from the PP bag and get stuck in the metal filters. With each run in the HPLC system, a small amount of these contaminants was dissolved and showed up in the MS system. We changed from standard PP to 'barefoot' PP bags (natural PP) and the customer is happy since then.

If you have identified the pipette or pipette tips as reason for the contamination, I would guess that you have a similar problem here. Even if the tips themselves are not made of PFA, the holder for the tip or the packaging could leach softeners and stabilizers into the tips which contain PFA or Teflon like contaminants. Any item on the HPLC system could be leaching into the analysis but I would start with sample prep containers, tubing and autosampler vial septa.

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