

Automated PFAS Clean-up

Perfluoroalkyl and Polyfluoroalkyl Substances

Clean-up of PFAS with Minimized Blank Values

Based on the robust and established FREESTYLE robotic system, LCTech has developed a solution especially for PFAS applications by avoiding fluorine-containing plastics such as PTFE and is thus solving the challenge: No blank values from the system were measurable.

Processing on Established Robotic System

Easy handling, robust setup, low-maintenance, and low cost of ownership

For the PFAS application, all parts of the robotic system and its modules which come into contact with the sample during the clean-up process have a minimized fluoropolymer content. The configuration of the modified robotic platform FREESTYLE BASIC is as follows:

For automated determination of PFAS in up to 100 mL samples via solid phase extraction:

- FREESTYLE BASIC system with SPE-PFAS module

For automated determination of PFAS in 0.1 – 10 L water samples (high throughput water analysis):

- FREESTYLE BASIC system with SPE-PFAS module and
- XANA-PFAS module



Fluoropolymer minimized for a sensitive PFAS analysis with low blank values!



According to Recent Regulations

The FREESTYLE-PFAS system enables the fully automated processing of PFAS according to public regulations. In the following, 10 selected PFAS were processed on the FREESTYLE XANA system in order to see whether all compounds are recovered and do not adhere to the system.

Due to the specifically designed PFAS system, which is virtually free of fluorocarbon compounds, any blank values stemming from the system are minimized. This was shown by PFAS background measurements of the instrument that were equal to the values obtained with neat solvent as shown in the table below.

Furthermore, the analytical targets of the DIN method were found with good recoveries and very low standard variations because of the reliable and robust automation.

As the FREESTYLE SPE module is an integral part of the FREESTYLE XANA, it is evident that a processing on the SPE system only is possible as well.

No	Component Name	Recovery [%]	STD [%]	Background FREESTYLE [ng/mL]	Background Solvent [ng/mL]
1	Polyfluorobutanoic acid (PFBA)	80	3,8	0	0
2	Polyfluoropentanoic acid (PFPeA)	106	1,1	0,09	0,06
3	Polyfluorohexanoic acid (PFHxA)	101	1,3	0,02	0,04
4	Polyfluoroheptanoic acid (PFHpA)	106	1,5	0,02	0,02
5	Polyfluorooctanoic acid (PFOA)	107	1,6	0,05	0,05
6	Polyfluorononanoic acid (PFNA)	102	1,8	0,01	0,01
7	Polyfluorodecanoic acid (PFDA)	66	2,0	0,01	0,01
8	Polyfluorobutane sulfonate (PFBS)	102	1,4	0	0
9	Polyfluorohexane sulfonate (PFHxS)	107	2,1	0	0
10	Polyfluorooctane sulfonate (PFOS)	79	1,7	0,01	0,01

Table 1: Recovery data of 10 selected PFAS compounds according to DIN 38407-42 and comparison of PFAS background concentrations of neat solvent and water samples processed with the FREESTYLE XANA system



The information contained in this flyer is based on our current knowledge and has been carefully checked. However, since we continually work on the further development of our products, please accept texts, pictures and numbers on these pages as non-binding and exemplary only.

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