

EluCLEAN[®] PFAS SPE Columns

For Manual or Automated Sample Preparation





1. EluCLEAN® PFAS – Universal and Universal HP

Universal Application for Various Matrices



Column	Matrices	P / N	Pcs / Pkg
EluCLEAN® PFAS - Universal	Food/Feed, Drinking Water, Aqueous and Solid Environmental Samples	20841	30
		20842	100
		20843	500
EluCLEAN® PFAS - Universal HP	Highly Pigmented Food/Feed Samples and Highly Colored Environmental Samples	20851	30
		20852	100
		20853	500

Features:

- Specifically developed columns with various interactions to improve recovery rates of longer chain PFAS ($\geq C12$) and neutral sulfonamide PFAS
- Suitable for all types of PFAS analytes according current standards and beyond
- EluCLEAN® PFAS - Universal is suitable for various types of matrices including food/feed, aqueous and solid environmental and drinking water matrices
- EluCLEAN® PFAS - Universal-HP column should be used for highly pigmented food/feed and highly colored environmental matrices
- Outstanding recovery rates and low standard deviations
- Excellent reproducibility

Example Applications:

Soil:

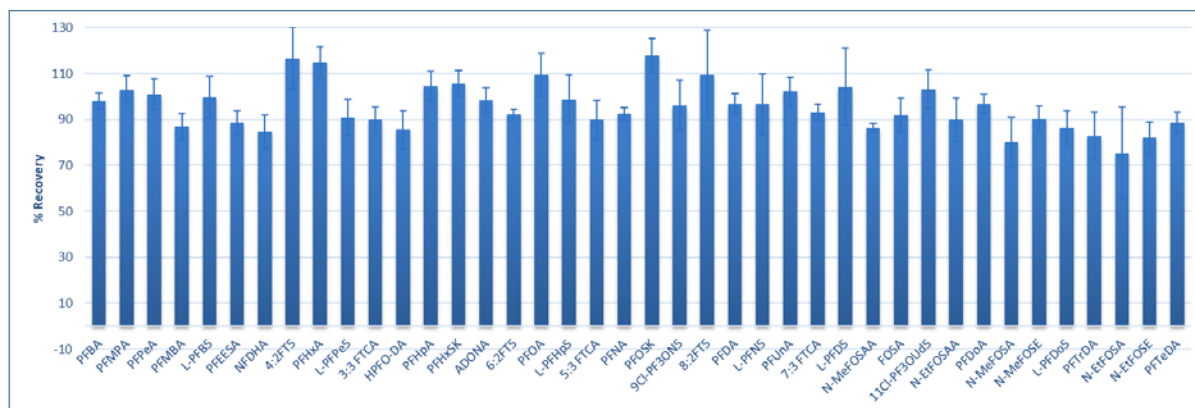


Fig. 1 Recovery rates of 40 PFAS from soil with EluCLEAN® PFAS - Universal columns (n = 4, c = 0.5 - 40 µg/kg)



Egg yolk:

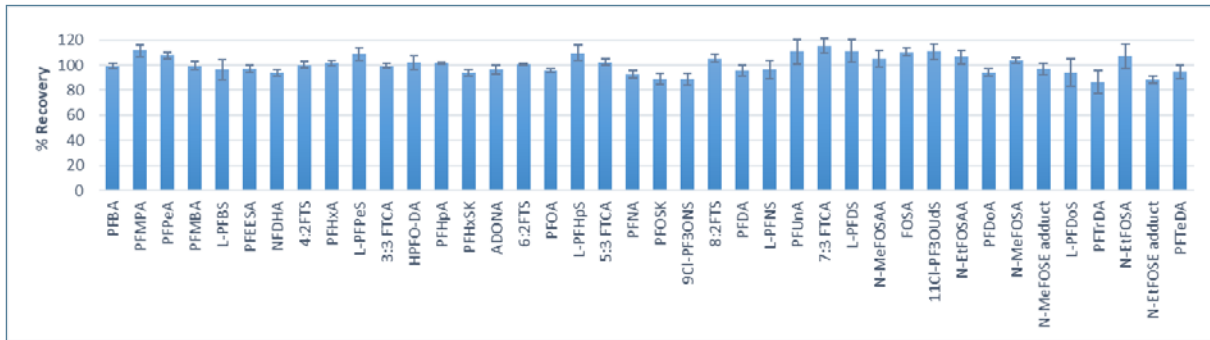


Fig. 2 Recovery rates of 40 PFAS from egg yolk with EluCLEAR® PFAS - Universal columns (n = 4, 0.1 - 8 µg/kg (0.4 µg/kg each for PFOS, PFOA, PFNA, PFHxS))

Minced meat:

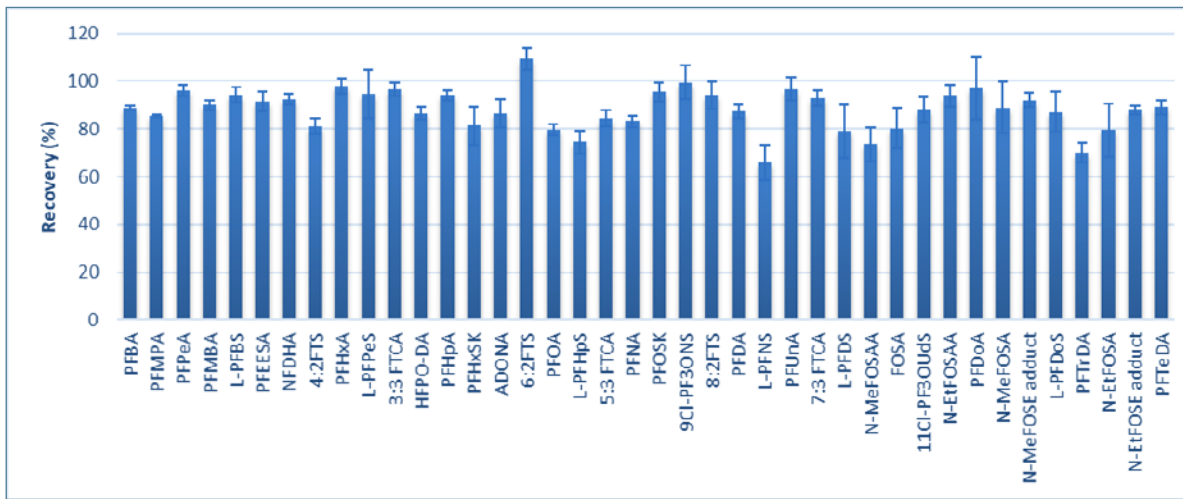


Fig. 3 Recovery rates of 40 PFAS from minced meat (beef/pork) with EluCLEAR® PFAS - Universal columns (n = 4, 0.1 - 8 µg/kg (0.4 µg/kg each for PFOS, PFOA, PFNA, PFHxS))

Carrots:

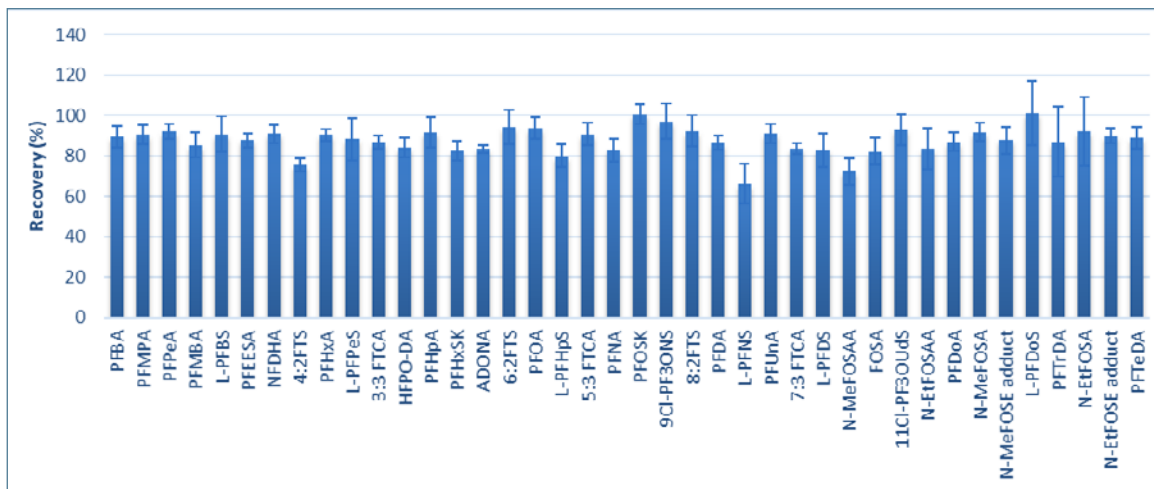


Fig. 4 Recovery rates of 40 PFAS from carrots with EluCLEAR® PFAS - Universal columns (n = 4, 0.1 - 8 µg/kg (0.4 µg/kg each for PFOS, PFOA, PFNA, PFHxS))



2. EluCLEAN® PFAS – WAX and SDVB

For Drinking Water, Compliant to International and National Standards



Column	Sorbent	Compliant to standards	P / N	Pcs / Pkg
EluCLEAN® PFAS SDVB	Polystyrene/Divinylbenzene Copolymer (SDVB) 500 mg/6 mL	US EPA 537.1, ISO 25101	20801	30
			20802	100
			20803	500
EluCLEAN® PFAS WAX	Weak Anion Exchanger, mixed-mode polymer (WAX) 500 mg/6 mL	US EPA 533, prEN-17892-2022, DIN 38407-42, ISO 21675:2019, ISO 25101	20811	30
			20812	100
			20813	500
EluCLEAN® PFAS WAX	Weak Anion Exchanger, mixed-mode polymer (WAX) 200 mg/6 mL	US EPA 533, prEN-17892-2022, DIN 38407-42, ISO 21675:2019, ISO 25101	20871	30
			20872	100
			20873	500

Features:

- SDVB and WAX materials optimised for PFAS applications
- Suitable for all types of PFAS analytes according current standards
- Recommended for use in drinking water applications
- Very good recovery rates and low standard deviations
- Excellent reproducibility

Example Applications:

Tap water: AN0052-Analysis-PFAS-Drinking-Water-EluCLEAN-PFAS-SPE-Column

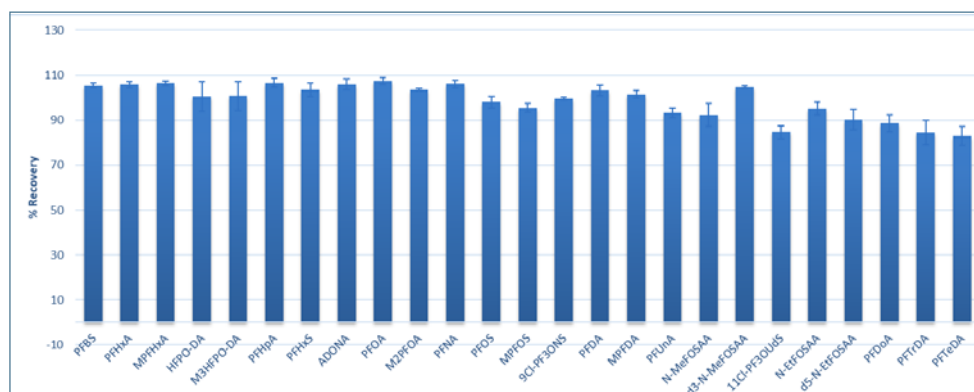


Fig. 5 Recovery rates of 18 PFAS (listed in US EPA method 537.1) + 7 surrogates from drinking water with EluCLEAN® SDVB columns (n = 4, c = 40 ng/L)

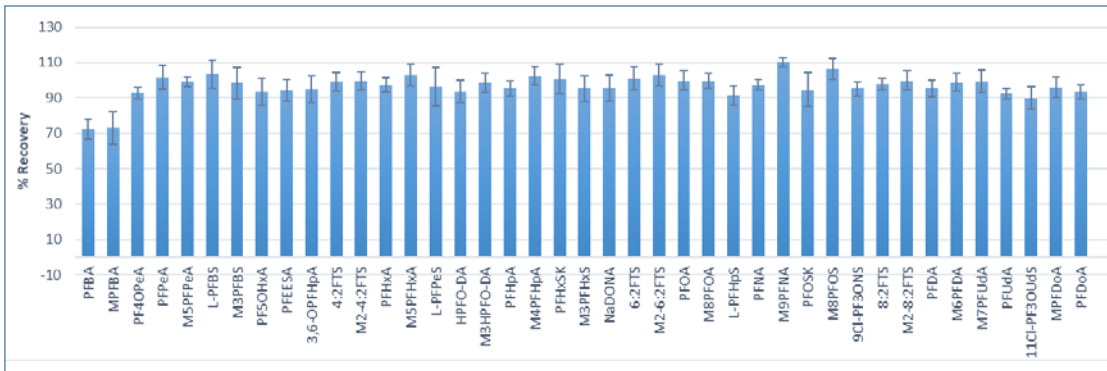


Fig. 6 Recovery rates of 25 PFAS (listed in US EPA method 533) from drinking water with EluCLEAN® PFAS - WAX columns (n = 4, c = 20 ng/L)

Requirements by method:

US EPA 537.1	EluCLEAN® – PFAS SDVB	fulfilled
Filling amount 500 mg	500 mg	✓
6 mL SPE cartridge	6 mL SPE cartridge	✓
Sorbent: Poly(Styrene-Co-Divinylbenzene) Polymer (SDVB)	Sorbent: Poly(Styrene-Co-Divinylbenzene) Polymer (SDVB)	✓
The sorbent may not be modified with monomers other than SDVB	No monomers other than SDVB	✓
Particle size 75 µm Pore size 300 Å	Particle size 75 µm Pore size 300 - 500 Å	✓

US EPA 533	EluCLEAN® – PFAS WAX	fulfilled
Filling amount 200 mg or 500 mg	200 mg or 500 mg	✓
Sorbent: weak anion exchange, mixed-mode polymeric sorbent	Sorbent: weak anion exchange, mixed-mode polymeric sorbent	✓
The SPE sorbent must have a pKa above 8 so that it remains positively charged during the extraction	pKa > 8	✓
Particle size approx. 33 µm	Particle size 40 µm	✓

ISO 21675:2019 and prEN-17892-2022	EluCLEAN® – PFAS WAX	fulfilled
Weak anion exchanger on a copolymer base	Weak anion exchanger on a copolymer base	✓

DIN 38407-42	EluCLEAN® – PFAS WAX	fulfilled
Weak polymer-based anion exchanger with bifunctional interactions	Weak polymer-based anion exchanger with bifunctional interactions	✓



3. EluCLEAN® PFAS – WAX / GCB

For Aqueous and Solid Environmental Samples, Compliant to International and National Standards



Column	Sorbent	Compliant to standards	P / N	Pcs / Pkg
EluCLEAN® PFAS WAX/GCB	Sorbent 1: Weak Anion Exchanger, Mixed-Mode Polymeric Sorbent (WAX) Sorbent 2: Graphitized Carbon Black (GCB) 150 mg/10 mg/6 mL	US EPA 1633 (3rd Draft), DIN 38414-14, DIN 38407-42, ISO 21675:2019	20821	30
			20822	100
			20823	500
EluCLEAN® PFAS WAX/GCB	Sorbent 1: Weak Anion Exchanger, Mixed-Mode Polymeric Sorbent (WAX) Sorbent 2: Graphitized Carbon Black (GCB) 200 mg/50 mg/6 mL	DoD und DoE QSM 5.1/5.3, US EPA 1633 (3rd Draft), DIN 38414-14, DIN 38407-42, ISO 21675:2019	20831	30
			20832	100
			20833	500

Features:

- WAX material optimised for PFAS applications
- Suitable for all types of PFAS analytes according current standards
- Recommended for use in solid and aqueous environmental applications
- No tendency to clog with remaining particles after centrifugation
- WAX + Carbon already combined in one cartridge (no second carbon cartridge or dispersive clean-up with carbon necessary)
- Very good recovery rates and low standard deviations
- Excellent reproducibility

Example Applications *EluCLEAN® PFAS - WAX / GCB 150 mg / 10 mg:*

Soil: AN0053-Analysis-PFAS-Soil-EluCLEAN®-PFAS-SPE-Column

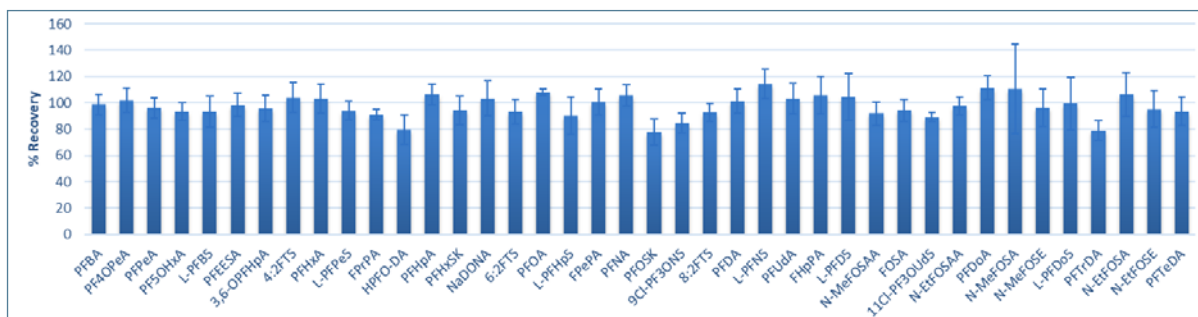


Fig. 7 Recovery rates of 40 PFAS (listed in US EPA method 1633 2nd draft) from soil with EluCLEAN® PFAS WAX/GCB columns (n = 4, c = 0.5 - 40 µg/kg)



Requirements by method:

US EPA 1633 (3rd draft)	EluCLEAN® – PFAS WAX/GCB	fulfilled
Filling amount WAX 150 mg	150 mg	✓
Amount Carbon 10 mg	10 mg	✓
The SPE sorbent must have a pKa above 8 so that it remains positively charged during the extraction	pKa > 8	✓
Carbon – EnviCarb™ 1-M-USP or equivalent (Particle size 37 - 125 µm) (Spec. surface 100 m ² /g)	Carbon ist äquivalent (Partikelgröße 37 - 125 µm) (Spez. Oberfläche 100 m ² /g)	✓

Filling amount modifications to improve performance are permitted, EluCLEAN® PFAS WAX/GCB with an increased amount of sorbent for higher matrix load can also be used.

DIN 38414-14	EluCLEAN® – PFAS WAX/GCB	fulfilled
Weak polymer-based anion exchanger with bifunctional interactions	Weak polymer-based anion exchanger with bifunctional interactions	✓

DoD and DoE QSM 5.1/5.3	EluCLEAN® – PFAS WAX/GCB	fulfilled
Solid Phase Extraction (SPE) has to be applied	SPE	✓
Carbon – EnviCarb™ or equivalent Particle size 37 - 125 µm) (Spec. surface 100 m ² /g)	Carbon is an equivalent (Particle size 37 - 125 µm) (Spec. surface 100 m ² /g)	✓



LC Tech Solutions for your PFAS Workflow

For *Solid Samples*

X-TRACTION® PFAS (PFE*)

For Extraction



D-EVA Concentration

For the sensor controlled evaporation of extracts



FREESTYLE™ SPE PFAS

For clean-up of up to 50 mL (e.g. Dual SPE)



EluCLEAN® PFAS

SPE columns



D-EVA Concentration

For the sensor controlled evaporation to a few µL



* Pressurized Fluid Extraction

For *Aqueous Samples*

FREESTYLE™ XANA PFAS

For clean-up of up to 4 L



FREESTYLE™ XANA PFAS TableTop

For clean-up of up to 250 mL



EluCLEAN® PFAS

SPE columns



D-EVA Concentration

For the sensor controlled evaporation to a few µL



Do you have any questions?
Get in touch with the LC Tech experts!



LC Tech GmbH
Daimlerstr. 4

84419 Obertaufkirchen, Germany
Tel. +49 8082 2717-0

info@LC Tech.de
www.LC Tech.de