CHRONECT™ by TRAJAN

CHRONECT™ PFAS Workstation

Automation options feature comparison

System variants

Feature/ option	CHRONECT™ PFAS complete	CHRONECT™ PFAS online SPE only (PAL based)	CHRONECT™ PFAS online SPE only (Alias based)
Robotic system	200 cm dualhead robotic RTC configuration	Choice of 53 or 85 cm robotic RSI configuration	None, LC autosampler Alias
LC-system	UHPLC pump & column oven part of the online SPE system		
PFAS background-free configuration	✓	✓	✓
LCMS TQ	Not included – integrates with most common TQs (or free choice of LCMS TQ manufacturer)		
Software	CHRONOS™ – controls robotic samplers and all modules, connects to CDS system for TQ data acquistion		
FAT/SAT	✓	✓	✓
Pre-mixing of samples prior injection	✓ (vortexer)	✓ (vortexer)	✓ (through asp/disp of autosampler syringe)
Automated solid-liquid extraction of solid samples	✓	-	-
Carbon cleanup	✓	-	-
Solvent exchange prior SPE	Not required, neutralisation and dilution of methanolic extract to 50 % aqueous composition		
WAX SPE cleanup of soil & biosolid extracts	✓	✓	✓
WAX SPE cleanup of water samples	✓	✓	✓
Peak focusing (HPD)	✓	✓	✓
Peak focusing at p>300 bar	additional binary or isocratic pump for elutions at >300 bar		

[1]Performance tests with Carbamazepine verify that the system meets the latest and highest analytical requirements. These tests are conducted both by the factory in-house (FAT) and on-site at the customer's facility (SAT).

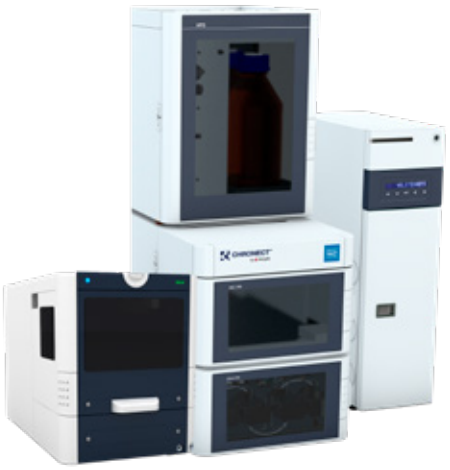
Services and trainings

Service/training	Description
Service and Preventative Maintenance	Scheduled service, calibration, software updates, wear-part replacement, and compliance documentation
PQ/Technical training – Basic	Advanced qualification and technical training
PQ/Technical training – Extended	Advanced qualification and technical training
Training excursion – sample preparation	Individual, on site training focused on sample preparation

CHRONECT™ PFAS complete

CHRONECT™ PFAS online SPE only
(PAL based)

CHRONECT™ PFAS online SPE only
(Alias based)



System components

CHRONECT robotic PAL3 & Alias

- DI LC-MS/MS injection and large volume online SPE LC-MS/MS injection through all 3 options
- 200 cm dual head robotic: automated sample preparation prior to online SPE LC-MS/MS and autosampler for direct and SPE injections
- equipped with a variety of tools and modules, that are configured individually to meet the requirements of PFAS analysis: e.g., vortexer to resolubilize analytes prior to injection, PTFE tubing-free modules and tools; automated extraction of solid samples, etc.

High-Pressure-Dispenser (HPD)

- Syringe pump connected to ACE and injection valve; delivers solvents and sample through cartridges, elutes the cartridge in peak focusing mode for PFAS analysis
- Equipped with WAX-online trap between HPD and injector for cartridge wash/condition/load

Automated Cartridge Exchanger (ACE)

- Places cartridges in flow path and returns them into tray; 4 high-pressure valves set the flow path
- **Cartridges**: weak anion exchange sorbent, ~3 mg material; 10x1 mm; housing material: PEEK

SPH1299 Pump

- Can elute the cartridge depending on flow path setting: in peak focusing mode for PFAS analysis LC gradient merged with cartridge elution flow
- PTFE eluent tubings + filters replaced PEEK tubings and stainless-steel frits, traps to remove system contaminants

Mistral – Column oven

- 100 x 3.0 mm ID, 3 µm, 12 nm C18 analytical column & corresponding guard

LCMS TQ – e.g., Shimadzu LCMS-8060 NX (not included)

Technical and analytical feature

- Analyses water, soil & biosolids based on EPA method 1633

- >40 PFAS analytes from 9 different chemical classes covering compound lists from EPA 1633 & DIN 38414-14/ DIN 17892;

- MDLs between 0.01-0.2 ng/g for soil and 0.1-5 ng/L for water

Fully automated workflow combines PAL3 robotic sample prep with online SPE directly coupled to LC-MS/MS analysis

- Solid-liquid extraction of soils & biosolids
- Loose carbon cleanup
- Neutrialisation and solvent composition adjustment
- Automated transfer/ injection of extract into online SPE LC-MS/MS cleanup & analysis
- No more manual work required after weighing sample
- Easily implemented adjustments to the workflow are possible with software and hardware - tools and modules are customizable to meet ever-changing requirements
- Overlapping time schedules from robotic sample prep & online SPE LC-MS/MS maximise sample throughput
- 24 samples/day from weighed sample to result
- Closed system reduces external sample contamination

Online SPE LC-MS/MS only workstations for analysis of water or manually prepared extracts from solid samples

- 40 samples/day

- No solvent-exchange required prior SPE cleanup, co-solvation of water and soil/biosolid extract in 50/50 aqueous/methanolic composition

- Peak focusing for improved chromatography of highly polar and unpolar PFAS in one run

For further information or to schedule a live demonstration, please contact our technical support team chronect.support@trajanscimed.com.

Subject to technical changes