

Automation in Ion Chromatography

Save time and money
through automated sample
preparation and analysis

PEOPLE
YOU
CAN
TRUST

 **Metrohm**

Automation for more reliability



In ion chromatography, anions, cations, carbohydrates, and polar substances are determined in a variety of matrices. Depending on the application, solid, liquid, or gaseous samples need to be analyzed. Today, automation of IC analysis has become the standard. For good reasons: Automation reduces manual steps to a minimum providing for a better reproducibility and accuracy of the results.

Automation solutions for ion chromatography by Metrohm are highly flexible. Sample volumes ranging from one microliter to half a liter can be handled without any problem. Even dedicated sample vials can be placed directly on the sample changer, as we can make our sample racks according to our customers' individual requirements. This eliminates the risk of contamination that occurs when the sample is transferred into another vial. The combination of sample introduction with the different Metrohm Inline Sample Preparation and intelligent injection techniques saves time, costs, and makes the entire analysis, including sample preparation, traceable down to every single step.

HIGHLIGHTS

- Fully automatic sample introduction
- High precision and accuracy of results
- Cost and time savings
- Combination with Metrohm Inline Sample Preparation techniques
- Professional liquid handling with near to zero carry-over
- Harmonization with intelligent injection techniques
- High flexibility in the volume of samples
- Use of multiple types and sizes of sample vials
- Completely metal-free sample channel
- Optional cooling function for the samples
- Free choice and customized sample racks
- Each step is freely programmable with the MagIC Net software
- Robust, reliable, and continuous handling of complete sample series



The 858 Professional Sample Processor can be equipped with a variety of sample racks. Choose the rack that accommodates your type and amount of samples.

Metrohm Inline Sample Preparation techniques



Crystal clear, clinically pure, free of particles – this is the description of an ideal sample for ion chromatography. But things are usually very different in real life. Various sample preparation steps are necessary in order to protect the separation column and the entire IC system from precipitation and blockages.

Metrohm enables carrying out these sample preparation steps inline in the course of the flow path, i.e., already during sample introduction. Unique techniques – some of them patented by Metrohm – are available. These techniques reduce manual steps, are very robust, reliable, and require hardly any maintenance.

METHODS OF METROHM INLINE SAMPLE PREPARATION (MISP)

- Inline Ultrafiltration
- Inline Dialysis
- Inline Dilution
- Inline Extraction
- Inline Matrix Elimination
- Inline Neutralization
- Inline Cation Removal
- Inline Preconcentration
- Inline Calibration
- Inline Spiking

Automated filtration and sample injection

With Inline Ultrafiltration, Metrohm offers a fast and cost-efficient alternative to manual filtration. Inline Ultrafiltration combines sample injection with filtration, integrating both steps into the fully automated analysis of your samples. Metrohm Inline Ultrafiltration uses membrane filters with a pore size of 0.2 μm and you can apply it to multiple samples as well as standards and blanks. With this approach you gain certainty and confidence in your measurements. Carry-over between samples is below 0.1%.

Due to the improved cell design, only half as much sample than previously is required for analysis, and it takes only a minute to exchange the filter membrane from the Ultrafiltration cell 2.

and several preconcentration techniques. The partial loop and dilution technique can also be combined with Inline Ultrafiltration and/or Inline Dialysis for optimal protection of your IC system.

METROHM INLINE ULTRAFILTRATION



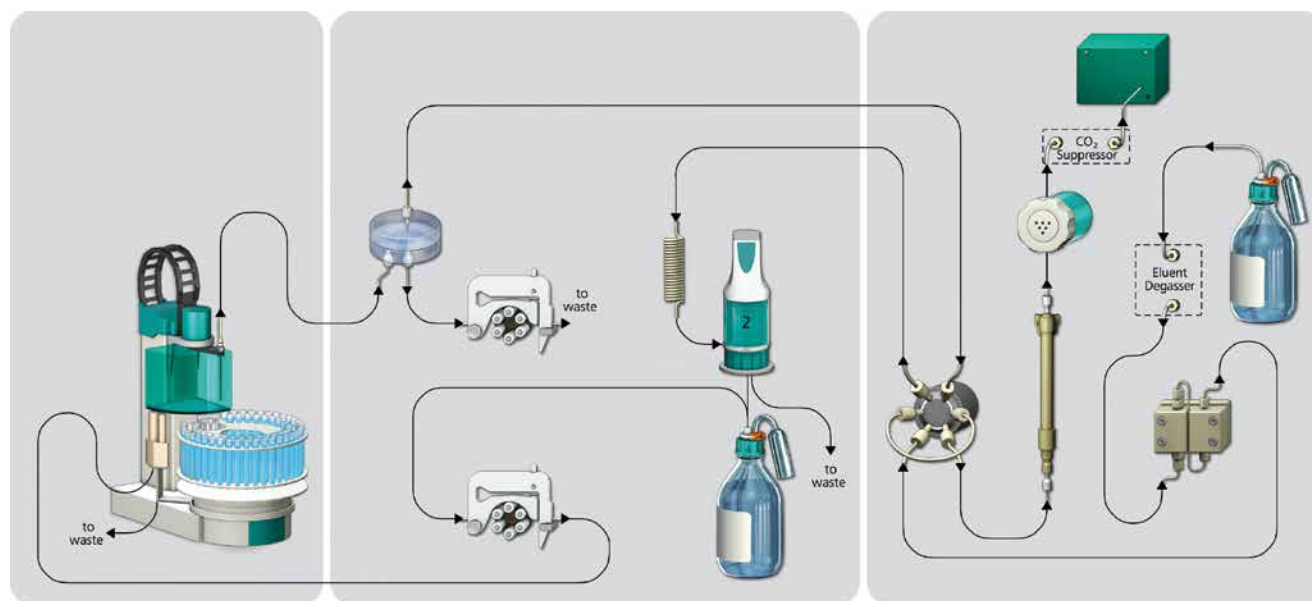
One standard calibration technique

Different injection techniques and the MISP solutions allow automatic calibration of the ion chromatography system. A multipoint calibration is done using only one multi-ion standard. This will save a lot of time and avoids errors from manual standard preparation.

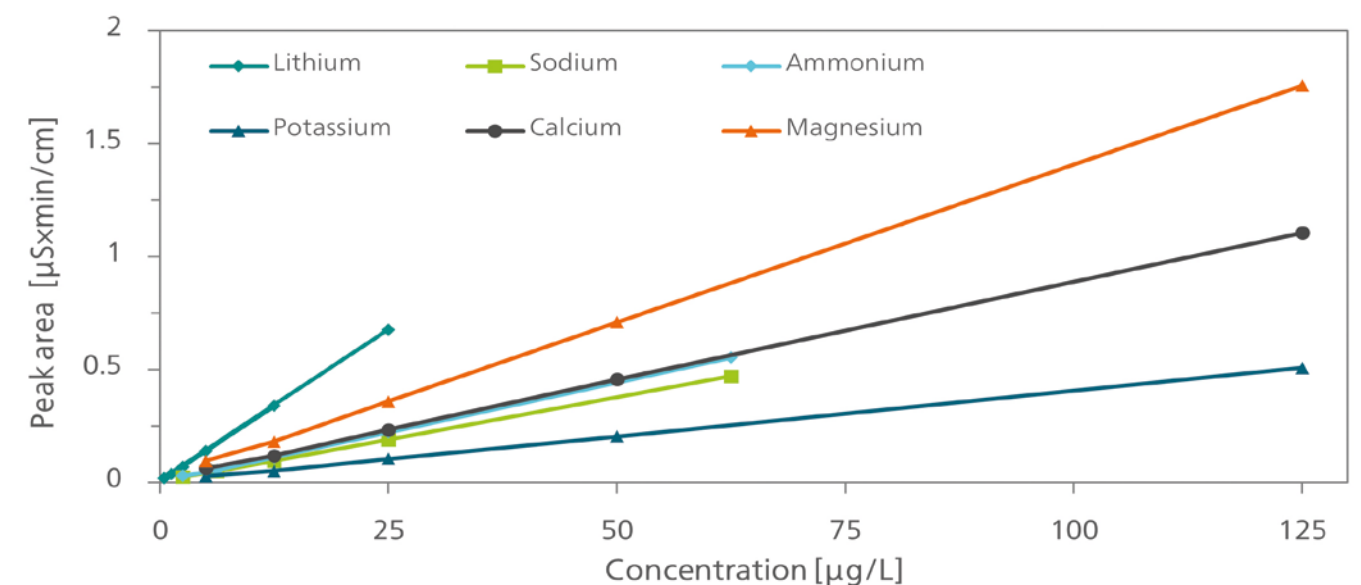
The automated calibration implies increased precision and reliability of the results and is easier to validate as the operator influence is reduced to an absolute minimum. Depending on the sample matrix, automated calibration can be included in Metrohm intelligent Partial Loop Injection Technique, Inline Dilution, intelligent Pick-up Injection Technique,

APPLICATIONS WITH INLINE ULTRAFILTRATION

- Analysis of anions, cations, carbohydrates, and polar substances in the ng/L to g/L range
- Samples slightly or moderately contaminated with particles, algae or bacteria
- Drinking water and surface water
- Process water and waste water
- Extracts
- Digestion solutions
- Diluted fruit and vegetable juices



The flowchart above shows the combination of partial loop injection (MiPT) with Ultrafiltration. This powerful combination of different MISP techniques allow Metrohm systems to combine in this case a single standard calibration and maximal system protection.



Single standard calibration by MiPT for cation analysis with a Metrosep C6 column and Metrohm microbore IC system.

Professional liquid handling guarantees correct results



Our universal and flexible Autosamplers



A scrupulous, contamination-free working method is fundamental for any liquid handling in ion chromatography. Moreover, particular attention must be paid to accuracy, and precision. In order to achieve this, Metrohm invented the 800 Dosino.

This dosing system can aspirate liquids fast and dose them with extreme precision (with a resolution of 0.2 μL). Thus, the 800 Dosino guarantees flow and dosing or aspirating accuracy over a long period. It is exactly this accuracy that is required for optimal results in, e.g., single standard calibration techniques.

For ultratrace analysis, the Dosino is combined with a buffer volume and a trap column. This sophisticated method prevents carry-over from sample to sample and also prevents matrix effects of auxiliary solutions on the chromatogram. As a result, ions can be determined reliably down to the single-digit ng/L range.

METHODS FOR ALTERNATIVE INJECTION TECHNIQUES

- Internal Loop Injection Technique
- Metrohm intelligent Partial Loop Injection Technique (MiPT)
- Metrohm intelligent Pick-up Injection Technique (MiPuT)
- Metrohm intelligent Preconcentration Technique (MiPCT)

858 Professional Sample Processor – the universal sample changer

The 858 Professional Sample Processor is a flexible sample changer that is geared entirely to your requirements. It can be operated together with all intelligent Metrohm ion chromatographs.

The 858 Professional Sample Processor is equipped with a 786 Swing Head and a robotic transfer arm. This configuration makes it possible, firstly, to reach all positions on the sample rack. Secondly, it is also possible to reach external positions, which are used by the Liquid Handling Station. Furthermore, the 858 Professional Sample Processor can be combined with all Metrohm Inline Sample Preparation techniques. For example, your samples can be diluted and filtered directly during sample delivery.

Flexibility for a broad variety of uses

Thanks to the wide variety of equipment options and methods, the 858 Professional Sample Processor is very flexible. Users can choose between a peristaltic pump or an 800 Dosino to introduce samples. Various injection methods, such as Full Loop, Internal Loop, Partial Loop or Pick-up, can be installed, and the sample can be transferred into the injection valve in push or pull mode.

The entire sample channel is metal-free and therefore also suitable for biological samples.

Sample volumes between 30 μL and 500 mL can be processed. An optional injection valve directly on the sample changer provides for additional flexibility in sample preparation and introduction. Moreover, this optional injection valve enables using the 858 Professional Sample Processor as a fraction collector. In addition, a large selection of sample racks is available. If a standard rack does not fit, we will be happy to offer a customized rack. Up to 211 samples, each of 11 mL, can be placed on the sample rack and processed in sequence. Your samples can be analyzed continuously not only over night, but also, if necessary, over an entire weekend.

For Inline Sample Preparation or other tasks peripheral devices can be connected to and controlled by the sample changer. Optional peripheral devices include, e.g., 800 Dosinos, magnetic stirrers, membrane pumps or the remote box.



Intelligence matters

The 858 Professional Sample Processor is an integral part of Metrohm's intelligent ion chromatography. The intelligence of the various components minimizes operating errors and makes self-monitoring systems possible. Sample changer, sample rack, and all connected peripheral devices are automatically recognized by the MagIC Net software and are available directly with all functions without any further configuration.

More user comfort

The 858 Professional Sample Processor is characterized by exceptional ease of use. To increase its efficiency, the 858 Professional Sample Processor can be used simultaneously with two or more analytical systems (multi-channel use). Thus you save laboratory space and reduce acquisition costs.

Trace analysis as a special challenge

In trace and ultratrace analysis it is essential to eliminate any potential sources of contamination. With customized sample racks, users can place their sample vials directly on the sample changer. Thus there is no need to transfer a sample from one vial to another, which always involves a high risk of contamination. Impurities caused by an additional sample beaker are also ruled out.

The carry-over from sample to sample can be minimized by various rinsing options. Rinsing reduces carry-over to close to zero, for example, to <0.001% in the case of intelligent Partial Loop Injection. The Liquid Handling Station with integrated rinsing unit installed directly on the sample changer is used to this end. Alternatively, 300 mL beakers filled with ultrapure water can be defined as rinsing positions on the sample rack. Thus determinations in the mg/L range and trace determinations can be carried out one after the other in a sample series – without time-consuming rinsing procedures.

889 IC Sample Center – The sample changer for keeping your samples cooled

The 889 IC Sample Center is the perfect automation solution for small sample volumes. In combination with the optional cooling function, it is the ideal system for sensitive biochemical samples. The 889 IC Sample Center is a robust autosampler for high sample throughput and optimized for the challenges of the modern analytical laboratory. It works with high-resolution injection control for precise sample delivery. A double needle system enables vial caps and septa to be pierced.

Cool the sample for better precision

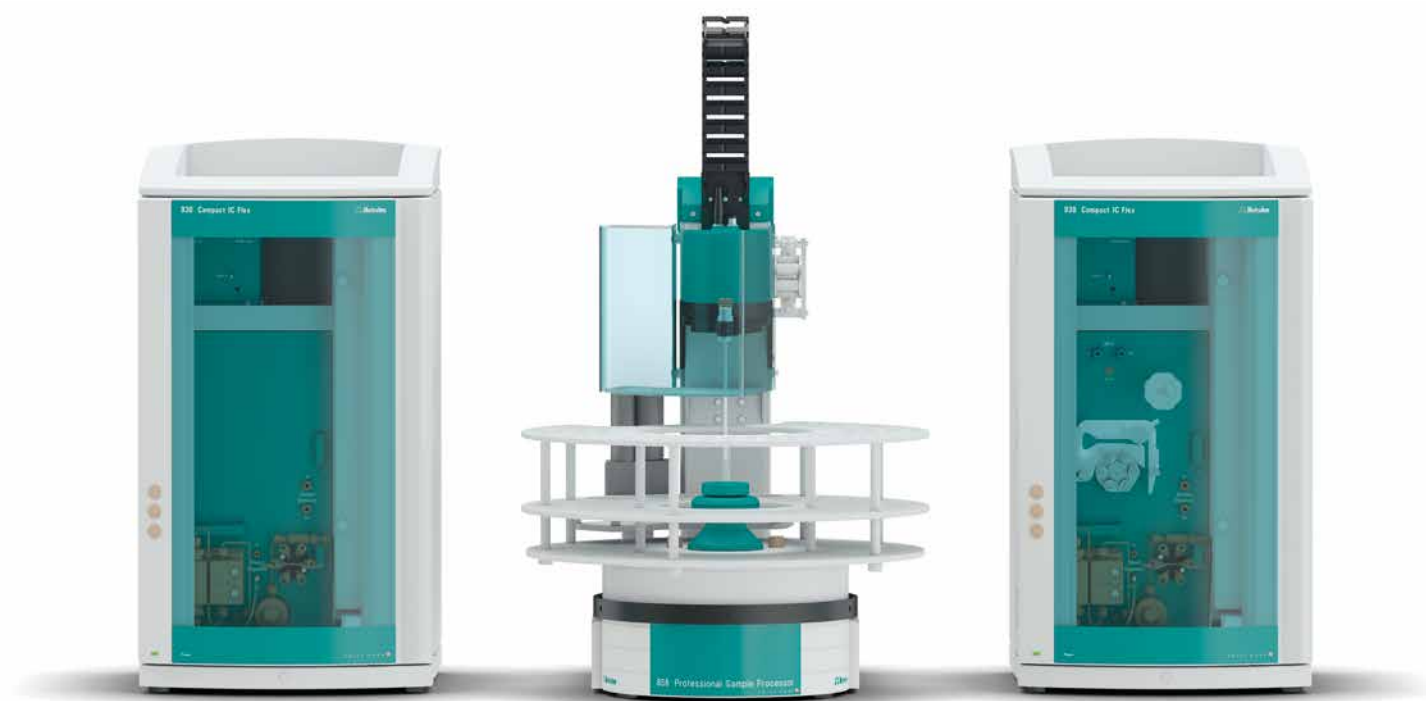
The 889 IC Sample Center is available with an optional cooling function. In these versions, a Peltier element ensures that the samples are cooled to a set stable temperature of minimum 4 °C. This sophisticated cooling system prevents any temperature gradient formation and guarantees stable and constant temperatures. Therefore, critical labile samples are able to withstand long sample series unaffected; the precision of analytical results is increased. Thus the 889 IC Sample Center with cooling function is an attractive option for any sensitive samples not only for the biochemical and clinical sector.

Versatile solution for smaller volumes

Next to several MISIP techniques, also various injection methods can be performed: Full Loop, Partial Loop, and Pick-up. The enormous flexibility of the system is also evident in the variability of the sample volume. The standard accessories include two 48 position sample racks for 300 and 700 µL sample vials. Injection volumes are flexible from 1 to 100 µL. Other SBS format sample racks or microtiter plates that are common in liquid chromatography are also combinable with the 889 IC Sample Center. The system supports sample racks with 12 to 384 sample positions. Sample volumes may range from 1 µL up to 10 mL.

Fast injection

In the 889 versions including the injector and syringe, the dead volume between injector and sample is kept as small as possible. Next to the ability to inject very small sample volumes, also the injection speed is optimized to an absolute minimum. Less than 10 seconds from the start of the determination to injection – the 889 IC Sample Center is one of the fastest sample changers currently available in the market. Needless to say that a very high throughput is guaranteed.



858 Professional Sample Processor in multi-channel use: An 858 Professional Sample Processor can introduce samples for two or more analytical systems.



The 889 IC Sample Center is the ideal sample changer for small sample volumes. The sample delivery is especially fast, which guarantees a high sample throughput.

919 IC Autosampler plus – Automation for medium-sized sample series

The 919 IC Autosampler plus is the ideal solution for simple automation tasks. Combined with a Metrohm intelligent ion chromatograph it enables sample transfer as well as frequently used Inline Sample Preparation steps such as Inline Ultrafiltration.

Generously equipped

56 positions for 11 mL respectively 2.5 mL sample vials mean that the 919 IC Autosampler plus offers more than enough space. Due to its metal-free sample channel, both biochemical samples and samples with aggressive matrices can be reliably injected. Sample transfer is provided either by a dual-channel peristaltic pump or by means of an 800 Dosino. Samples can be transferred both in the push or pull mode. As a rinsing beaker can be easily installed on the rack, carry-over effects from sample to sample are minimized.

Various sample needles

The 919 IC Autosampler plus as well as the 858 Professional Sample Processor feature a sample needle made from zirconium oxide and includes a tip made of PEEK material. The sample needle is rugged, hard to break and very durable. Moreover, it minimizes carry-over effects from sample to sample. The sample

needle is well-suited both for universal use in trace analysis as well as for highly contaminated samples.

Just as on the 858 Professional Sample Processor alternative needles can be mounted. With the coated steel needle small volumes down to single digit μL can be aspirated accurately and precisely. Due to its reduced outer diameter, the needle is also suitable to pierce vials closed with septum caps.

The metal-free pick-up needle is a dedicated needle for the Pick-up Injection Technique in which ion analysis can be performed for the smallest sample volumes.

Simple upgrade possible

If there is an increased number of samples to be analyzed, the 919 IC Autosampler can be easily upgraded at any time. In fact, it can be upgraded to feature the complete capacity and functionality of an 858 Professional Sample Processor: Positions on the rack can be increased to 211, a Liquid Handling Station can be installed, and sample vials of various shapes and sizes can be used. Moreover upgrading the 919 IC Autosampler plus enables the use of Inline Dilution.



Either simply used to introduce samples or with integrated Inline Ultrafiltration, the 919 IC Autosampler plus is an efficient solution for automation.

863 Compact IC Autosampler – The compact Metrohm sample changer

The 863 Compact IC Autosampler excels by its small footprint and impressive capability. The 863 Compact IC Autosampler automates the Eco IC, the 930 Compact IC Flex as well as the 940 Professional IC Vario, which features a sample channel free of any metal. The 863 Compact IC Autosampler is the ideal tool for routine analysis.

Configuration for the small tasks in day-to-day laboratory work

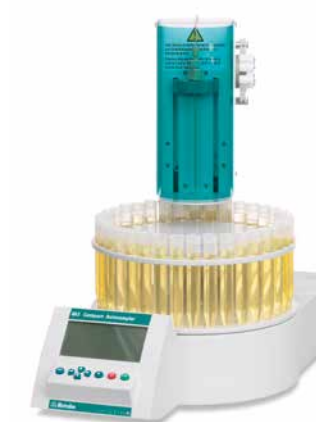
The 863 Compact IC Autosampler is preconfigured and equipped with a sample rack for 36 positions. Its built-in peristaltic pump can be used to transfer the sample or for sample preparation steps. It can be operated at 7 speeds and in both directions; with this sample changer, too, the sample can be supplied in the push and pull mode.

The sample changer can be controlled by all versions of MagIC Net or, alternatively, programmed easily by the integral keyboard. Moreover, you can automate several analytical systems operating independently of each other (multi-channel use). Even if you analyze only a limited number of samples, automation helps you to save valuable time.

Very easy to use

The 863 Compact IC Autosampler is operated with the ion chromatography software MagIC Net. The software is available in a variety of languages; even users with basic skills will find it very easy to use.

«Remote» signals enable the 863 Compact IC Autosampler to be controlled even by Metrohm ion chromatographs that do not use MagIC Net or even by third-party instruments. The 863 Compact IC Autosampler is supplied with 4 predefined methods, which users can modify as they wish and store under a name of their choice. To edit the methods, there is an integral keyboard combined with a large LCD screen. In the «remote» mode up to 99 samples can be processed in sequence. Here too, users can select their language, so operating errors are ruled out.



The 863 Compact IC Autosampler: small and reliable.



814 USB Sample Processor and 815 Robotic USB Sample Processor XL – Versatile automation partners

Both sample processors extend the automation possibilities for ion chromatography. They guarantee a robust and highly precise sample introduction and can be upgraded with various accessories. An 800 Dosino is typically used for sample delivery into the injection valve. The sample path is inert and completely free of any metal. Sensitive samples are protected.

The differentiation between the two types of sample processors is the rack size which can be handled. The 814 USB Sample Processor can use the exact same racks as the 858 Professional IC Autosampler. The 815 Robotic USB Sample Processor XL is Metrohm's largest sample changer for ion chromatography which can handle up to 228 samples, each of 11 mL, on the sample rack. Processed in sequence this ensures the operation over minimum three consecutive days.

For universal use

Like the 814 USB Sample Processor, the 815 Robotic USB Sample Processor XL can be universally used for ion chromatography, voltammetry, as well as titration. They can be controlled by MagIC Net, **viva**, and

tiamo™, respectively. The great benefit for the user is that only one sample changer is needed for the different analytical methods. All Metrohm sample processor racks fit with the 815 Robotic USB Sample Processor XL.

Flexible equipment

Both sample processors are available with a single or a double workstation. This enables new possibilities for sample handling. For example, a sample processor with two working stations can introduce samples independently and without any contamination risk to a dual channel IC- system. With the «Discover» function the covers of sample vessels are removed automatically for the sample introduction process and sealed afterwards. Other advantages are an optional amount of membrane pumps for rinsing procedures, and the free choice of the sample rack.

If Metrohm standard, preassembled racks will not fit the customer's needs, we offer a customized solution, allowing users to place their laboratory's specific sample vessels directly on the rack. Hence, samples don't need to be transferred manually between different vials any longer.



The 815 Robotic USB Sample Processor XL with two work stations enables users to introduce samples and to collect different fractions of the analyzed samples. With 228 rack positions there is plenty of space available.

815 Robotic Soliprep for LC – Automation for solid samples

Cooling or heating of samples

The 815 Robotic USB Sample Processor XL can cool (down to 10 °C) and heat (up to +55 °C) samples. By cooling, users can stabilize their samples and thereby achieve greater precision. In contrast, heating speeds up reactions, for example, to passivate/deactivate unwanted components in the samples.

The old cliché, according to which ion chromatography is only suitable for analyzing liquid samples, is no longer valid. Modern sample preparation and automation techniques allow even gases or solids to be analyzed. With the 815 Robotic Soliprep for LC, Metrohm offers a modern automation solution for solid samples.

The 815 Robotic Soliprep for LC – more than a sample changer

The 815 Robotic Soliprep for LC enables users to homogenize, extract, dilute, and filter samples. Both solid and liquid samples are prepared fully automated and without any manual intervention. Subsequently, the sample is transferred directly to an IC or HPLC system with a specific connector. Depending on the requirements of the application, the 815 Robotic Soliprep offers enormous flexibility in the configuration of the system and integrates all sample preparation steps into a single, continuous, and fully automated analytical sequence. To this end there is a selection of sample racks available, which can be equipped with various inserts.



The 815 Robotic Soliprep for LC for Inline Sample Preparation of solid samples. The worked-up sample is transferred directly to an IC or HPLC system. This fully automatic analytical system minimizes manual steps and guarantees complete traceability.

TitriC flex – Determine all ions on a single system



High purity Metrohm sample vessels



TitriC flex is the most convenient solution for a comprehensive water analysis. Combining titration, direct measurement, and ion chromatography (IC), TitriC flex allows to determine the complete range of parameters typically measured in water.

TitriC is fast, reliable, and allows to analyze large sample series completely unattended. The results for all three methods (titration, direct measurement, and ion chromatography) are collected in the same database and combined into a shared report.

TitriC flex is a dedicated solution for comprehensive water analysis but may also be used for many other applications.

HIGHLIGHTS

- Combination of titration, direct measurement, and ion chromatography (IC)
- Parallel performance of titration and IC
- All results in a common database and combined in a shared report
- Straightforward calculation of the ionic balance
- Single or combined use of ion chromatography, titration, and direct measurement
- One autosampler (OMNIS Sample Robot) shared by three analytical techniques
- Increased throughput by expanding the modular autosampler (OMNIS Sample Robot)

Polymeric sample vials can be potentially contaminated with leachable organic and inorganic ions, which originate from the production process or from the raw material. Organic components including organic acids and other ionic components can diffuse from the plastic material into the solution contacting the surface. These contaminants, which are typically referred to as «extractable» or «leachable», may be introduced to vials during manufacturing as stabilizers or as components of the polymer itself (e.g., traces of fluoride for fluorinated polymers).

In ion chromatography, the major requirement for «clean» sample container materials is the absence of ions. Any amount of anions or cations added to the sample from the sample container will falsify the analysis result.

Metrohm vial quality

Metrohm vials are produced and packed under certified cleanroom class 7 conditions, compliant to DIN ISO 14644. The purity of the different vials and bottles is additionally validated in-house by an initial impurity test and a leaching test. The test for impurities is performed directly after filling the vial with ultrapure water. The second test is achieved

after a leaching time of 12 hours. According to Metrohm specifications, the concentration of leachable inorganic anions, alkali, and alkaline earth metal cations as well as ammonium need to be below 1 µg/L for both initial impurity and 12 hours leaching. Also the organic acids (glycolate, acetate, propionate, formate, and oxalate) need to be below 1 µg/L in the initial impurity test and below 5 µg/L after 12 hours leaching.

The results of the comparison of initial anion and cation leachates demonstrate the quality of Metrohm vials, which is due to the superior production process. All contamination levels are within the specifications. Similar tests have also been conducted on vials from other suppliers, where most anions and cations of interest exceeded the required levels for ion chromatography. Such vials are not recommended for sub-mg/L applications.

The cleanliness of Metrohm sample vials permits direct sample analysis for almost all applications. For sensitive analysis as direct analysis of concentrations in the low µg/L range or for preconcentration, pre-rinsing of the vials with ultrapure water or sample is recommended to achieve the highest purity.



TitriC Flex I – the fully automated system for direct measurement of temperature, conductivity and pH value, the titrimetric determination of the p and m values, calcium, and magnesium. Anions are determined simultaneously by ion chromatography after passing through Inline Ultrafiltration.



Ions	Required concentration limit
Inorganic anions (F ⁻ , Cl ⁻ , NO ₂ ⁻ , Br ⁻ , NO ₃ ⁻ , HPO ₄ ²⁻ , SO ₄ ²⁻), initial contamination and after 12 hours leaching	< 1 µg/L
Cations (Li ⁺ , Na ⁺ , NH ₄ ⁺ , K ⁺ , Mg ²⁺ , Ca ²⁺), initial contamination and after 12 hours leaching	< 1 µg/L
Organic acids initial contamination	< 1 µg/L
Organic acids after 12 hours leaching	< 5 µg/L

Sample racks and sample vials

A variety of sample racks can be used for Metrohm sample changers. A selection can be found in the table below. Plastic or glass sample vials can be used

together with these racks. If your sample vials are not listed, we would be happy to draw up a customized solution for you.

		Metrohm sample vials									External sample vials							
Material		PP					PE			Glass			Nalgene® PP, PE, FEP, PFA		Sarstedt	Eppendorf	Corning®	
Rack	Number of sample positions on the rack	0.3 mL vials 6.2743.110	0.7 mL vials 6.2743.100	2.5 mL vials 6.2743.040	11 mL vials 6.2743.050	50 mL bottles 6.02743.030	250 mL beaker 6.1453.250	50 mL bottle 6.1608.100	125 mL bottle 6.1627.000	300 mL bottle 6.1608.080	1.5 mL vials 6.7303.100	6 mL vials 6.2419.000	8 mL vials 6.2420.007	60 mL FEP bottle	250 mL FEP bottle	50 mL screw cap tube, PP	Eppendorf tubes 1–2 mL	25 cm² Cell culture flask, canted neck
6.2041.200		48	48								48							
6.2041.210												12	12					
6.2041.400				126	126		2											
6.2041.410				141	141				1	1								
6.2041.430				127	127				2	2								
6.2041.440				148	148				3	3								
6.2041.450				56	56											56		
6.2041.480									3	3							159	
6.2041.510				56	56		1											
6.2041.750				36	36													
6.2041.760				54	54				1	1								
6.2041.770				211	211													
6.2041.780				65	65	25												
6.2041.860				228	228				2	2								
6.9920.115*				95	95													
6.9920.191							3	35						35	3			
6.9920.242		82	82								82							
6.9920.255									10									25
6.9920.264		217	217								217							
6.9920.287				109	109				12									
6.9920.321				180	180				6	6								
6.9920.330																		

- For use with the 889 IC Sample Center
- For use with the 858 Professional Sample Processor, 814, and 815
- For use with the 815 USB Sample Processor XL only

Technical information



	858	889	919	863	814	815
Sample racks and sample vials	Variable: ≤ 999 positions standard rack: 148 × 11 or 2.5 mL vials	Variable: ≤ 768 positions standard rack: 48 × 0.3 or 0.7 mL vials	Variable: ≤ 720 positions standard rack: 56 × 11 or 2.5 mL vials	Fixed rack with 36 positions for 11 or 2.5 mL vials	Variable: ≤ 999 positions standard rack: 148 × 11 or 2.5 mL vials	Variable: ≤ 999 positions standard rack: 228 × 11 or 2.5 mL vials
Sample volume	0.03 – 500 mL	0.001 – 10 mL	0.03 – 11 mL	0.5 – 11 mL	0.03 – 500 mL	0.03 – 500 mL
Sample delivery	Dual channel peristaltic pump or 800 Dosino	Microliter syringe, peristaltic pump IC or 800 dosino	Dual channel peristaltic pump or 800 Dosino	Single channel peristaltic pump	800 Dosino or peristaltic pump IC	800 Dosino or peristaltic pump IC
External position accessible	Yes	Yes	No	No	Yes	Yes
Liquid Handling Station	Yes	Yes	No	No	Yes	Yes
Injection valve, e.g., for sample preparation	Yes	Yes	No	No	No	No
Metrohm Inline Sample Preparation «MISP»	All techniques	Multiple techniques	Some techniques	Limited selection	Some techniques	Some techniques
Injection method	Full Loop, Internal Loop, Partial Loop, Pick-up	Full Loop, Internal Loop, Partial Loop, Pick-up	Full Loop, Internal Loop, Partial Loop, Pick-up	Full Loop, Internal Loop	Full Loop, Internal Loop, Partial Loop, Pick-up	Full Loop, Internal Loop, Partial Loop, Pick-up
Control of peripheral devices via MSB	3 x	No	3 x	No	3 x	3 x

Ordering information

858 Professional Sample Processor	
2.858.0010	858 Professional Sample Processor
2.858.0020	858 Professional Sample Processor with dual-channel peristaltic pump
2.858.0030	859 Professional Sample Processor with dual-channel peristaltic pump and 6-port injection valve
Accessories for Professional Sample Processor	
6.2841.120	Liquid Handling Station, left
6.2841.130	Liquid Handling Station, right
6.5330.130	IC equipment: Liquid Handling Station, left
2.741.0010	741 Magnetic stirrer for Liquid Handling Station
6.2846.010	Zirconium needle with PEEK tip
6.2624.200	Coated steel needle
6.2624.100	Pick-up needle MF
919 IC Autosampler plus	
2.919.0020	919 IC Autosampler plus including sample rack and sample vials
6.5867.000	Upgrade Kit for 919 IC Autosampler plus
863 Compact IC Autosampler	
2.863.0010	863 Compact IC Autosampler including sample rack and sample vials
889 IC Sample Center	
2.889.0010	889 IC Sample Center with injector and syringe including sample racks and sample vials
2.889.0020	890 IC Sample Center with injector, syringe and cooling function including sample racks and sample vials
2.889.0030	889 IC Sample Center including sample racks and sample vials
2.889.0040	890 IC Sample Center with cooling function including sample racks and sample vials
814 USB Sample Processor	
2.814.0030	814 USB Sample Processor with one tower
815 Robotic USB Sample Processor XL	
2.815.0030	815 Robotic USB Sample Processor XL with one tower
2.815.0130	815 Robotic USB Sample Processor XL with two towers
2.815.4110	815 Robotic Soliprep for LC

Liquid handling	
2.800.0010	800 Dosino
6.1580.120	807 Dosing Unit 2 mL
6.1580.150	807 Dosing Unit 5 mL
6.1580.210	807 Dosing Unit 10 mL
6.1580.220	807 Dosing Unit 20 mL
6.1580.250	807 Dosing Unit 50 mL
6.3033.150	Dosing Unit PCR 5 mL
MISP IC equipment sets	
6.05330.010	IC equipment: Inline Ultrafiltration 2 - pull mode
6.05330.110	IC equipment: Inline Ultrafiltration 2 - push mode
6.05330.210	IC equipment: Inline Ultrafiltration 2 - MiPT
6.5330.100	IC equipment: Inline Dialysis
6.5330.120	IC equipment: Inline Dilution
6.5330.140	IC equipment: MiPCT
6.5330.160	IC equipment: MiPCT-ME
6.5330.170	IC equipment: MiPuT
6.5330.180	IC equipment: MiPT
6.5330.200	IC equipment: Low Volume Inline Dialysis

«We decided on an ion chromatography system from Metrohm, because it is highly automated and very precise.»



Michael Siragusa
Technical Manager, SwissShrimp, Switzerland

Sample vials and caps	
6.2743.050	11 mL sample vial, 2000 pieces, PP
6.2743.057	11 mL sample vial, 200 pieces, PP
6.2743.040	2.5 mL sample vial, 2000 pieces, PP
6.2743.047	2.5 mL sample vial, 200 pieces, PP
6.02743.030	50 mL bottle, 12 pieces, PP
6.1608.100	50 mL bottle, PE
6.1627.000	125 mL bottle, PE
6.1608.080	300 mL bottle, PE
6.02743.090	Screw cap with septum for 50 and 125 mL bottle, 12 pieces
6.1627.100	Screw cap with septum, trace analysis
6.2743.070	Perforated stoppers for 11 and 2.5 mL sample vial, 2000 pieces
6.2743.077	Perforated stoppers for 11 and 2.5 mL sample vial, 200 pieces
6.2743.100	0.7 mL sample vial, 1000 pieces, PP
6.2743.107	0.7 mL sample vial, 100 pieces, PP
6.2743.110	0.3 mL sample vial, 1000 pieces, PP
6.2743.117	0.3 mL sample vial, 100 pieces, PP
6.7303.100	1.5 mL sample vial, 100 pieces, glass
6.2419.000	6 mL sample vial, 1000 pieces, glass
6.2419.007	6 mL sample vial, 100 pieces, glass
6.2420.007	8 mL sample vial, 100 pieces, glass
6.2743.120	Septum for HPLC vials, 1000 pieces
6.2743.127	Septum for HPLC vials, 100 pieces
6.7303.110	Septum for HPLC vials, 100 pieces
6.1448.050	Septum caps for 6 mL vials, 1000 pieces, aluminum
6.1448.057	Septum caps for 6 mL vials, 100 pieces, aluminum
6.1448.067	Screw cap with septum for 8 mL vials, 100 pieces
6.2820.000	Aluminium foil for closing large-volume sample vials

