Automation in ion chromatography

Save time and money through automated sample preparation and analysis

25 Years IC
Metrohm Ion Chromatography

Ω **Metrohm**

Automation for more analytical 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. Complete automation of such determinations is increasing in importance all the time. For good reasons: Automation reduces manual steps to a minimum providing for better reproducibility and accuracy of results.

Metrohm's modern automation solutions for ion chromatography are highly flexible. Sample volumes ranging from one microliter to half a liter can be handled without any problem. Even special sample vessels can be placed directly on the sample changer, as we 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 vessel. The combination of sample introduction with the different Metrohm inline sample preparation techniques saves time and cost and makes the entire analysis, including sample preparation, traceable right down to every single step.

Highlights

- Fully automatic sample introduction
- High precision and accuracy of results
- Cost and time savings
- Parallel working
- Combination with Metrohm inline sample preparation techniques and professional liquid handling
- Flexibility in the volume of samples
- Use of any type and size of sample vessels
- Completely metal-free sample channel
- Optional cooling function
- Sample rack and possibility for rinsing the sample needle can be selected freely
- Each step is freely programmable with the ion chromatography software MagIC Net™
- Robust, reliable and continuous handling of complete sample series

Metrohm Inline Sample Preparation techniques

Crystal clear, clinically pure, free of particles – this is the description of the 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 us – are available for this. These techniques reduce manual steps, are very robust, reliable and require hardly any maintenance.

Metrohm Inline Sample Preparation opens up new fields of application. Thus, the reliable elimination of potential sources of contamination opens up the field of ultratrace analysis. Moreover, each single step is traceable. Users save valuable time and increase analytical reliability.

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
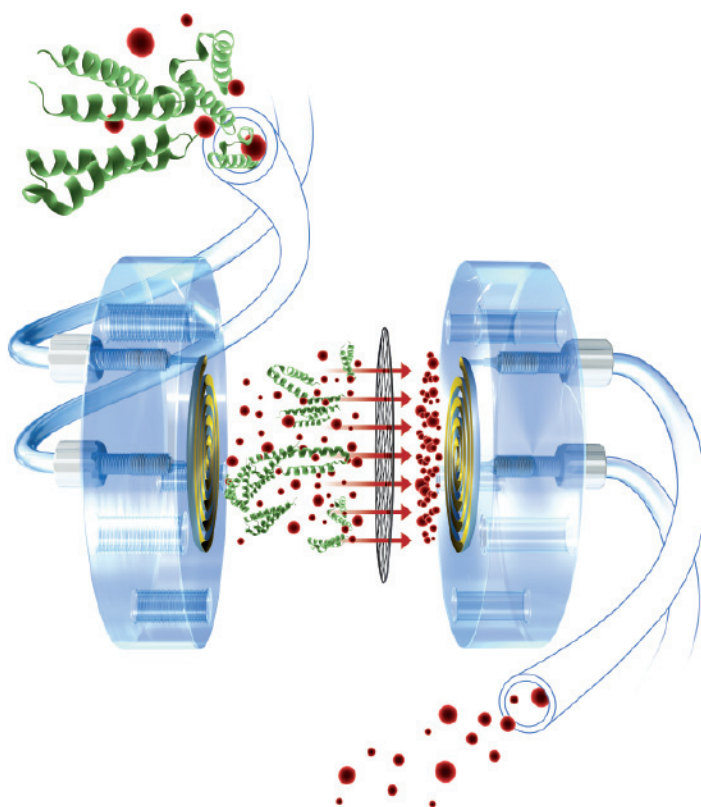
The dialysis cell shown is the heart of Metrohm Inline Dialysis. This patented technique separates not only particles from your analytes, but also colloids, oil components and large molecules, such as proteins. Thus you can determine anions, cations, carbohydrates and small polar substances in the µg/L to g/L range in the following sample matrices:

- emulsions and dispersions
- process water, washing water and waste water
- oil-containing samples such as cutting oils and petroleum-containing samples
- samples from fermentation processes
- dairy products and other protein-containing samples
- body fluids
- organically contaminated samples
- concentrated fruit and vegetable juices

Professional Liquid Handling guarantees correct results

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 patented 800 Dosino. This dosing system can draw in liquids fast and deliver them with extreme precision (to an accuracy of 0.2 µL). Thus, the 800 Dosino guarantees flow and dosing accuracy over a long period. Besides the classical full loop techniques, alternative injection techniques are also feasible with the Dosino:

- intelligent Partial Loop Injection Technique (MiPT)
- intelligent Pick-up Injection Technique (MiPuT)

For ultratrace analysis the Dosino is combined with a buffer volume and a trap column. This sophisticated method prevents carryover from sample to sample and also prevents effects of auxiliary solutions on the chromatogram. As a result, ions can be determined reliably down to the single-digit ng/L range.
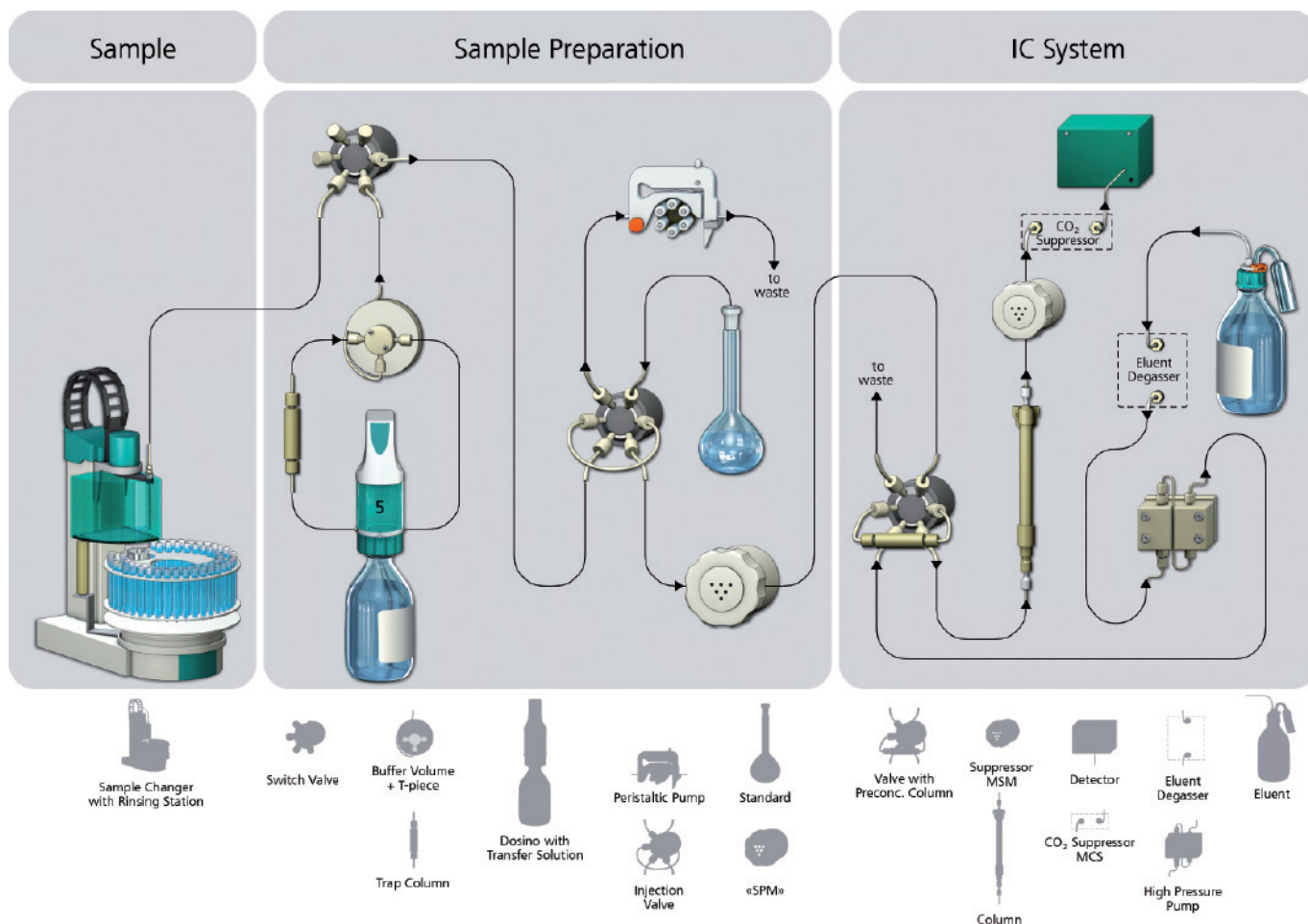
IC system for determining ultratraces in strongly alkaline or acidic samples: The IC system is equipped with Inline Neutralization and Inline Calibration. Inline Neutralization ensures that even strongly alkaline samples can be preconcentrated and thus replaces time-consuming and cost-intensive manual sample preparation with solid-phase extraction cartridges (SPE cartridges). Inline Calibration is a unique technique enabling reliable calibration in the ng/L range. By combining both techniques with the professional liquid handling of the 800 Dosino it is possible – amongst other things – to reliably analyze ultratraces of anions in cooling water samples from conventional power plants as well as from nuclear power plants.

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 analytical systems based on the Professional IC family.

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, amongst other things, for a dilution and extraction vessel or for a rinsing 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 of working available, 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, partial-loop or pick-up, can be installed, and the sample can be transported 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 500 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, so operators can use their own sample vessels. If a ready-made rack will not do, we will be happy to offer a customized rack. Up to 999 different sample positions can be accessed on Metrohm racks.

For Inline Sample Preparation or other tasks peripheral units can be connected to and controlled by the sample changer. Optional peripheral units include, for example, membrane pumps, magnetic stirrers, rod stirrers, remote connection boxes or additional 800 Dosinos.

The 858 Professional Sample Processor can be equipped with a variety of sample racks. Choose the rack that accommodates your amount of samples. You will find a selection of sample racks on page 20.

858 Professional Sample Processor

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 units are automatically recognized by the MagIC Net™ user 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 effectiveness, 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 purchase 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 vessels directly on the sample changer. Thus there is no need to transfer a sample from one vessel to another, which always involves a high risk of contamination. Moreover, carry-over-effects are also ruled out.

The carryover from sample to sample can be minimized by various rinsing options. The rinsing of the sample needle from the inside and outside reduces carryover, for example, to <0.001% in the case of intelligent Partial Loop Injection. The washing station installed directly on the sample changer is used to this end. Alternatively, 300 mL beakers filled with ultrapure water can be defined as rinsing stations 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.

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

Measuring pH value and conductivity in the sample stream

Measuring conductivity and the pH value in order to determine the dilution factor for a sample is a standard procedure in many laboratories. A single, fully automated IC system including both measurements can be achieved, if an 867 pH Module and an 856 Conductivity Module are combined with an 858 Professional Sample Processor. From the measured conductivity of the sample the soft-

ware calculates the required dilution factor. In combination with Metrohm Inline Dilution (MIDT), this procedure makes sure that the ionic concentration of the solution is ideal for the subsequent analysis by IC. If inline pH measurement is also included in this procedure, Metrohm enables users to determine the most important parameters in water analysis on a single system.

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 the instruments from the Professional IC family 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 vessels mean that the 919 IC Autosampler plus offers more than enough space. Due to its metal-free sample channel, both bio-chemical samples and samples with aggressive matrices can be reliably introduced. Sample transfer is provided either by a dual-channel peristaltic pump or by means of an 800 Dosino. Samples can be moved both in the push or pull mode. As a rinsing beaker can be easily installed on the rack, carryover effects from sample to sample are avoided.

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

Long-lived ceramic sample needle

The 919 IC Autosampler plus features a newly developed sample needle made from zirconium oxide. Due to this, it is rugged, hard to break and very durable. Moreover, it minimizes carryover effects from sample to sample. The new sample needle is well-suited both for universal use in trace analysis as well as in highly contaminated samples.

Simple upgrade possible

If there is an increased number of samples to be analyzed, the 919 IC Autosampler can be easily upgraded at any point in 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 148, a rinsing station can be installed, and sample vessels of various shapes and sizes can be used. Moreover upgrading the 919 IC Autosampler plus enables the use of logical Inline Dilution.

The 919 IC Autosampler plus can be used with all Metrohm instruments from the Professional IC family.
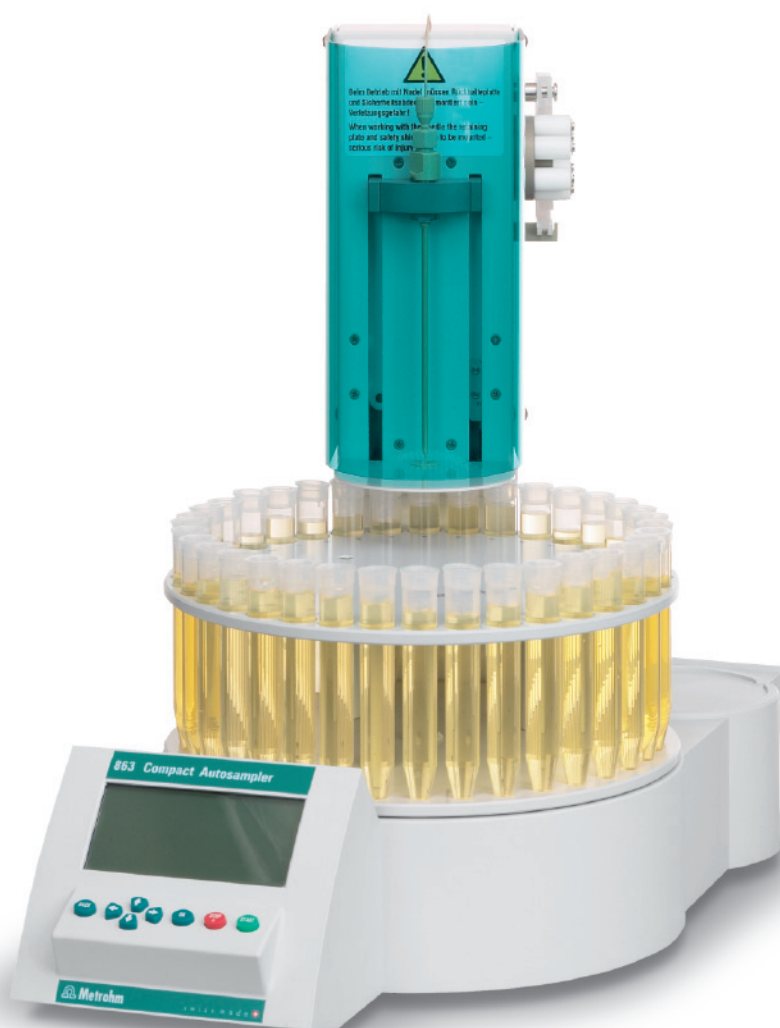
863 Compact IC Autosampler –
the smallest Metrohm sample changer

The 863 Compact IC Autosampler excels by its small footprint and impressive capability. The 863 Compact IC Autosampler automates instruments from the 850 Professional IC line as well as all Compact and Basic IC instruments. The 863 Compact IC Autosampler, too, features a sample channel free of any metal. Thus the device is suitable both for trace analysis and for the analysis of aggressive main components. 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, 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).

The 863 Compact IC Autosampler: small and reliable.

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 choosing. 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 in combination with the 881 Compact IC pro is the perfect system for routine analyses of small sample quantities.

889 IC Sample Center –
the sample changer for small sample volumes

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 according to the x-y-z principle and with high-resolution injection control for precise sample delivery. A double-needle system enables vessel caps and septa to be pierced. A PEEK injection valve completes the automation system of the 889 IC Sample Center.

Fast and versatile

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.

The 889 IC Sample Center is also characterized by its versatility. Various injection methods can be selected: 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 vessels. Injection volumes from 1 to 100 µL can be selected. Other SBS standard sample racks that are common in liquid chromatography or microtiter plates can also be used with the 889 IC Sample Center. The system supports sample racks with 12 to 384 slots. Sample volumes may range from 1 µL to 10 mL.
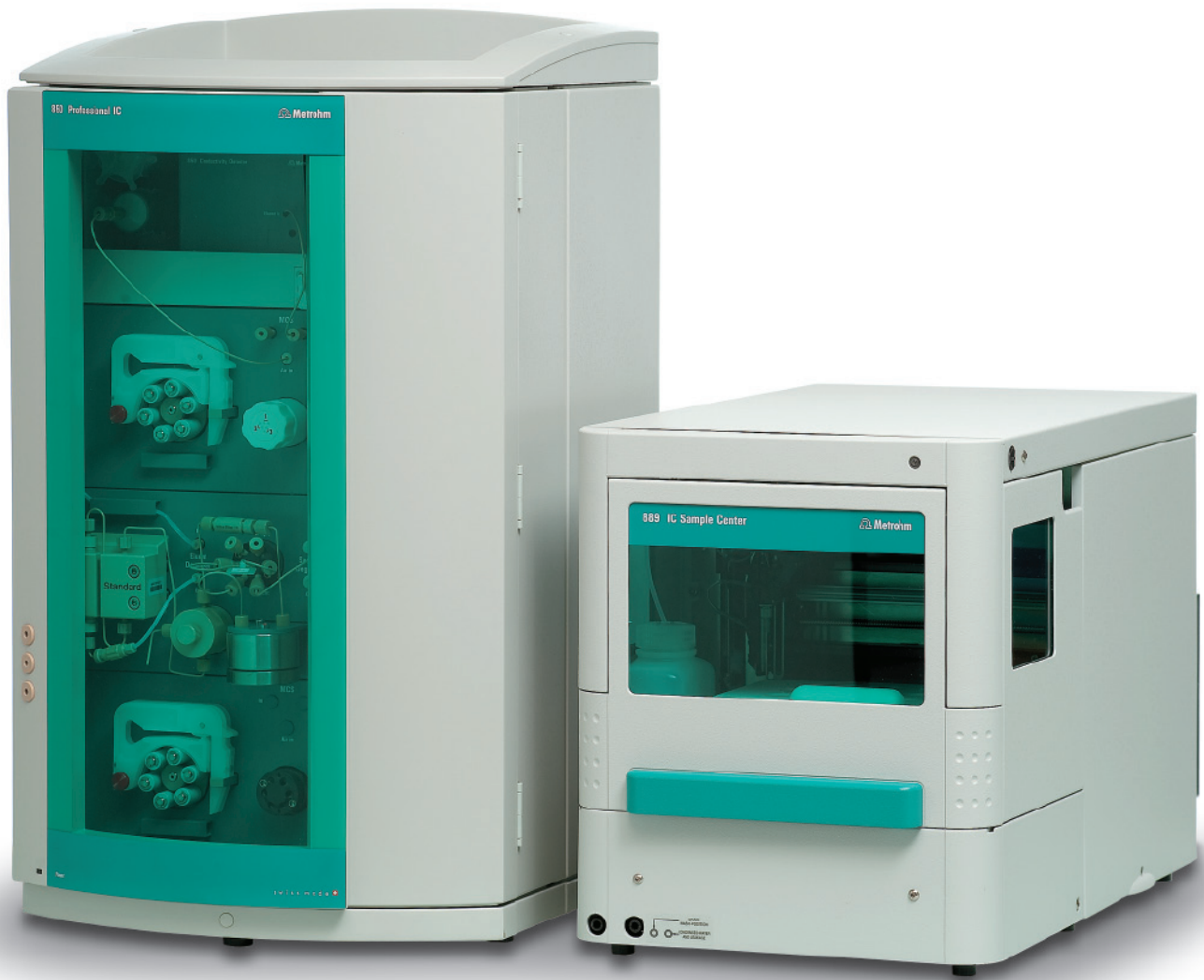

The 889 IC Sample Center is the ideal sample changer for small sample volumes. Samples are introduced with more than average speed, guaranteeing high throughput.

Cool the sample for better precision

The 889 IC Sample Center is available with a cooling function. In this version a Peltier element ensures that samples are cooled to a stable temperature of minimum 4 °C. Due to the sophisticated cooling system no temperature gradient can develop; a constant temperature is guaranteed. As a result, samples in which stability is critical 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 not only for the biochemical and clinical sector.

Just as all other Metrohm sample changers the 889 IC Sample Center enables sample introduction on several analytical systems working in parallel (multi-channel use). This saves bench space as well as costs.

814 USB Sample Processor – a versatile partner

The 814 USB Sample Processor extends the automation possibilities in ion chromatography. It guarantees a robust and highly precise introduction of samples and can be upgraded with various accessories. An 800 Dosino is used for sample delivery into the injection valve. The sample path of the 814 USB Sample Processor is also completely free of any metal and thus inert. Sensitive samples are protected.

For universal use

The 814 USB Sample Processor can be used not only for ion chromatography, but also for titrimetric applications. Various software packages such as PC Control, *tiamo*™ and MagIC Net™ can be used to control the sample changer. Stand-alone operation with a touch panel is also possible. The great benefit for the user is that only one sample changer is needed for the different analytical methods.

Flexible equipment

The 814 USB Sample Processor is available with one work station and with two work stations. This opens up new possibilities for inline sample preparation and for sample handling. For example, the «Discover» function can be used to briefly remove the covers of large sample vessels (75 & 250 mL) for sampling and seal them again.

Other advantages of the 814 USB Sample Processor are an optical beaker sensor, which virtually eliminates operating errors, an optional number of membrane pumps that can be used for rinsing procedures, and free choice of sample rack, allowing users to place their laboratory's specific sample vessels directly on the rack.
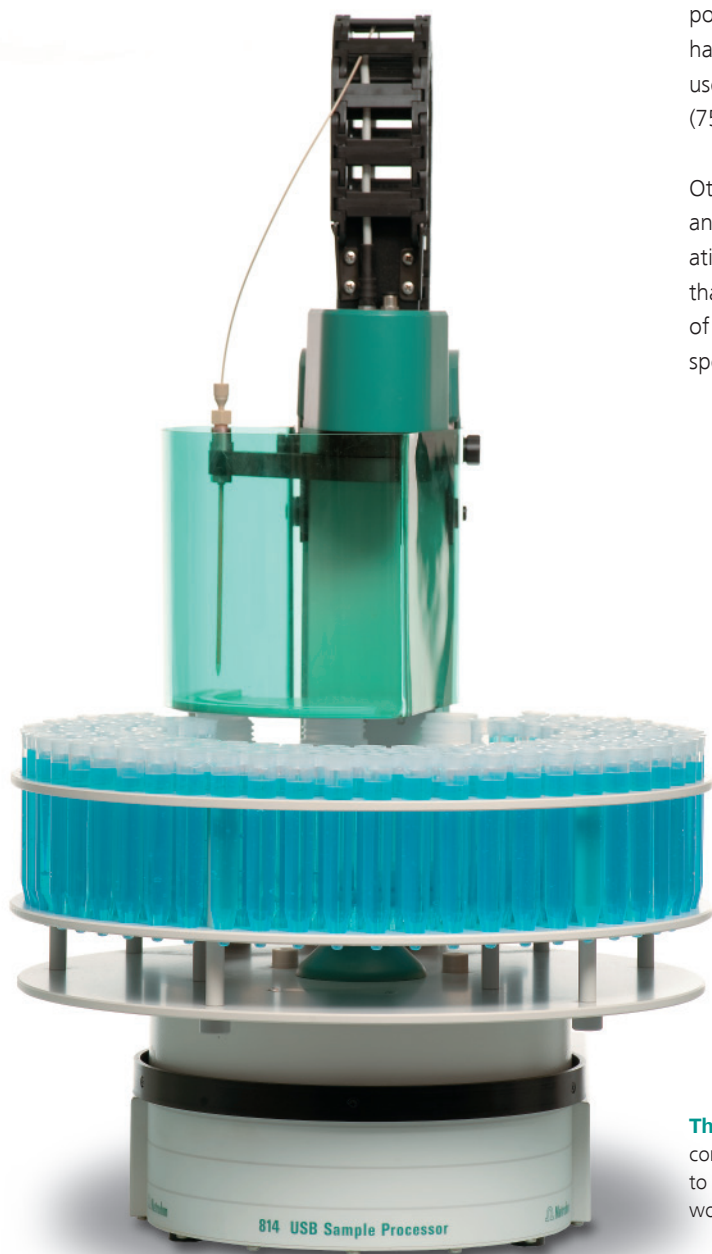
The 814 USB Sample Processor works through your samples continuously and with perfect reliablility. An 800 Dosino is used to transfer samples, guaranteeing precise and contamination-free working.

815 Robotic USB Sample Processor XL – the biggest Metrohm sample changer

The 815 Robotic USB Sample Processor XL is Metrohm's largest and most versatile sample changer for ion chromatography. Up to 228 samples, each of 11 mL, can be placed on the sample rack and processed in sequence. Your samples can be analyzed continuously not only overnight, but also, if necessary, over an entire weekend.

One sample changer for every application
Just like the 814 USB Sample Processor, the 815 Robotic USB Sample Processor XL can be used both for titration and for ion chromatography. It can be controlled by PC Control, *tiamo*™ and MagIC Net™. All Metrohm sample racks can be used with the 815 Robotic USB Sample Processor XL. If a ready-made rack will not do, we will be happy to offer a customized solution.

Other advantages of the 815 Robotic USB Sample Processor XL are various rinsing options, to minimize the carryover from sample to sample, the «Discover» function, which allows even large sample volumes to be protected against dirt and contamination, and the beaker sensor, which virtually eliminates operating errors. The wide range of equipment available gives you the possibility to use one or two work stations and determine the number of membrane pumps yourself. Thus, the 815 Robotic USB Sample Processor XL offers enormous versatility for Inline Sample Preparation and liquid handling.

Cooling or heating of samples
The 815 Robotic USB Sample Processor XL can both 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; an effect that is used, for example, in sample preparation, to make unwanted components harmless.


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

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 also allow gases and 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 is a version of the 815 Robotic USB Sample Processor XL, which is presented on page 17. With this system all manual steps can be automated in full.
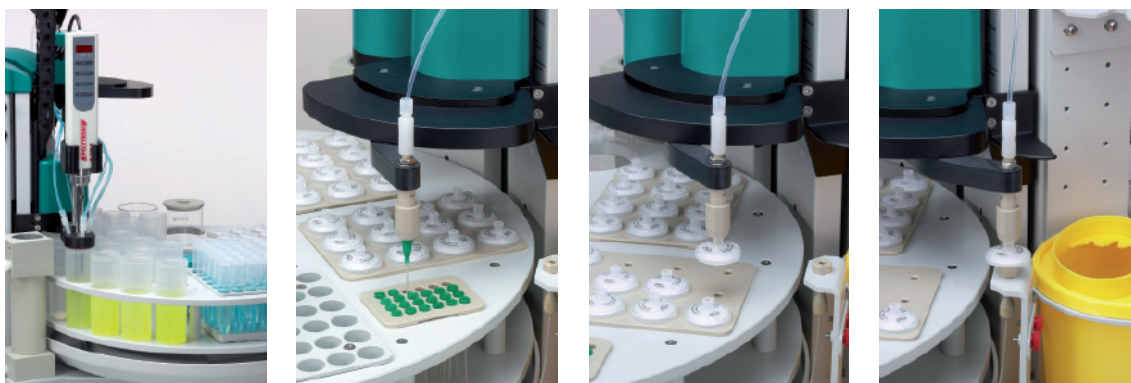
Automatic sample preparation of various steps. In the first step, solvent is added, the sample comminuted and then homogenized. After that, sample is drawn up with a metal-free needle, filtered and finally transferred directly to an LC system by way of a connection port.
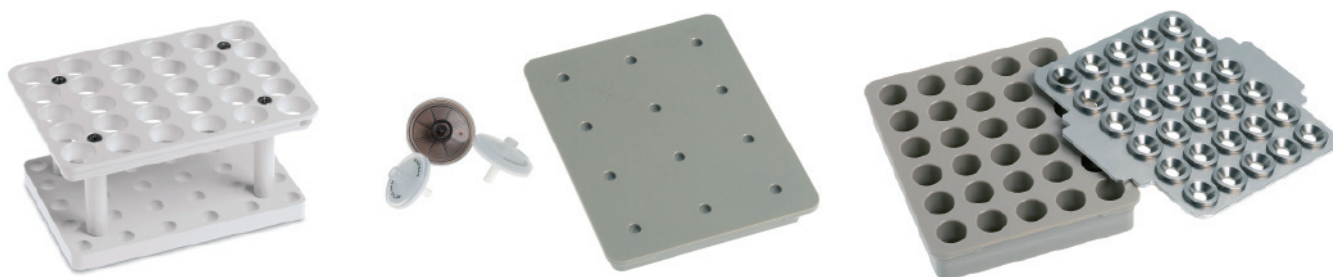
In the Soliprep system the sample rack can be adapted individually to the particular application. Different inserts provide the highest degree of flexibility.

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 solid or liquid samples. Subsequently, the sample is transferred directly to an IC or HPLC system by way of a 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 equipment of the 815 Robotic Soliprep for LC

The 815 Robotic Soliprep for LC comprises not only an 815 Robotic USB Sample Processor XL with two work stations, but also the equipment for homogenizing the sample («Polytron» homogenizer and washing station for

the «Polytron»), for liquid handling (800 Dosinos and 772 Pump Unit) and for transferring the prepared sample to an LC system (connector with capillary). 24 solid samples in 120 mL vessels can be placed on the standard sample rack of the 815 Robotic Soliprep for LC. In addition, 30 sample vials (11 mL), 24 metal-free sample needles and 24 syringe filters are available there.

Applications from a variety of industrial sectors

With the 815 Robotic Soliprep for LC the scope of use of ion chromatography can also be extended to solid samples. Typical samples come from the pharmaceutical industry. However, this system is also ideally suited to the analysis of foods, feedstuffs and environmentally relevant samples such as sediments.

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.

Sample racks and sample vessels

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

Material grouping — Metrohm sample vessels: Polypropylene (columns 0.3 mL vials 6.2743.110 through 250 mL vessels 6.1453.250), PE (50 mL vessels 6.1608.100, 300 mL vessels 6.1608.080), Glass (6 mL vessels 6.2419.000, 75 mL vessels 6.1432.210, 100 mL vessels 6.1608.050, 250 mL vessels 6.1432.320). External sample vessels: Nalgene® PP, PE, FEP, PFA (60 mL, 125 mL, 250 mL vessels), Eppendorf PP (1 mL, 1.5 mL, 2 mL vials).

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 vessels 6.2747.010	75 mL vessels 6.1459.400	120 mL vessels 6.1459.300	200 mL vessels 6.1453.220	200mL vessels 6.1459.310	250 mL vessels 6.1453.250	50 mL vessels 6.1608.100	300 mL vessels 6.1608.080	6 mL vessels 6.2419.000	75 mL vessels 6.1432.210	100 mL vessels 6.1608.050	250 mL vessels 6.1432.320	60 mL vessels	125 mL vessels	250 mL vessels	1 mL vials	1.5 mL vials	2 mL vials
6.2041.200	48	48																				
6.2041.210													12									
6.2041.310							12		12							12		12				
6.2041.340						24								24								
6.2041.350						48								48								
6.2041.360								12														
6.2041.370								14														
6.2041.380															14				14			
6.2041.390																		16				
6.2041.410			141	141								1										
6.2041.430			127	127								2										
6.2041.440			148	148								3										
6.2041.450			56	56	56																	
6.2041.480												3								159	159	159
6.2041.510			56	56								1										
6.2041.750			36	36																		
6.2041.760			54	54								1										
6.2041.800						100								100								
6.2041.820							28		28							28						
6.2041.830								28														
6.2041.850							59						59									
6.2041.860			228	228									2									
6.2041.900*						54									54							
6.9920.115*			95	95																		
6.9920.142											24					24						

■ (teal) For use with 858 Professional Sample Processor, 814 USB Sample Processor and 815 Robotic USB Sample Processor XL

■ (red) For use with 889 IC Sample Center

■ (blue) For use with 815 Robotic USB Sample Processor XL

PP ... Polypropylene
PE ... Polyethylene
FEP ... Perfluoroethylene propylene copolymer
PFA ... Perfluoroalkoxy copolymer

* Sample rack only for use in combination with water bath 6.2840.000 and drip pan 6.2711.070

Technical information

	858	919	863	889	814	815
Sample rack and sample vials	Variable: ≤999 positions standard rack: 148 x 2.5 or 11 mL vials	Variable: ≤720 positions standard rack: 56 x 2.5 or 11 mL vials	Fixed rack with 36 positions for 2.5 or 11 mL vials	Variable: ≤384 positions standard rack: 2x 48 x 0.3 or 0.7 mL vials	Variable: ≤999 positions standard rack: 148 x 2.5 or 11 mL vials	Variable: ≤999 positions standard rack: 228 x 2.5 or 11 mL vials
Sample volume	0.5 – 500 mL	0.5 – 11 mL	0.5 – 11 mL	0.001 – 10 mL	0.5 – 500 mL	0.5 – 500 mL
Sample delivery	Dual-channel peristaltic pump or 800 Dosino	Dual-channel peristaltic pump or 800 Dosino	Single-channel peristaltic pump	Microliter syringe	800 Dosino	800 Dosino
External position accessible	Yes	No	No	No	Yes	Yes
Rinsing station	Yes	No	No	Yes	Yes	Yes
Injection valve, e.g. for sample preparation	Yes	No	No	Yes	No	No
Metrohm Inline Sample Preparation «MISP»	All techniques	Some techniques	Limited selection	Limited selection	Some techniques	Some techniques
Injection method	full-Loop, partial-Loop, pick-up	full-Loop, partial-Loop, pick-up	full-Loop, partial-Loop	full-Loop, partial-Loop, pick-up	full-Loop, partial-Loop, pick-up	full-Loop, partial-Loop, pick-up
Can be combined with	850, 881, 882, 883	850, 881, 882, 883	850, 881, 882, 883	850, 881, 882, 883	850, 881, 882, 883	850, 881, 882, 883
Software control by means of	MagIC Net™	MagIC Net™	MagIC Net™	MagIC Net™	MagIC Net™, *tiamo*™, PC Control	MagIC Net™, *tiamo*™, PC Control
Multi-channel use	Yes	Yes	Yes	Yes	Yes	Yes
Connection to PC	USB	USB	USB	USB	USB	USB
Control of peripheral units via MSB	3 x	3 x	No	No	3 x	3 x
ZrO$_2$ sample needle	Yes	Yes	Yes	No	Yes	Yes

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	858 Professional Sample Processor with dual-channel peristaltic pump and 6-port injection valve

6.5330.000	IC equipment for inline dialysis
6.5330.010	IC equipment for inline ultrafiltration
6.5330.020	IC equipment for inline dilution
6.5330.030	IC equipment for rinsing station

919 IC Autosampler plus

2.919.0020	919 Autosampler plus incl. sample rack and vessels

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 including sample rack and sample vials
2.889.0020	889 IC Sample Center with cooling function including sample rack and sample vials

814 USB Sample Processor

2.814.0010	814 USB Sample Processor with one work station and one membrane pump
2.814.0020	814 USB Sample Processor with one work station and two membrane pumps
2.814.0030	814 USB Sample Processor with one work station and no membrane pump
2.814.0110	814 USB Sample Processor with two work stations and two membrane pumps
2.814.0120	814 USB Sample Processor with two work stations and four membrane pumps
2.814.0130	814 USB Sample Processor with two work stations and no membrane pump

6.5330.030	IC equipment for rinsing station

815 Robotic USB Sample Processor XL

2.815.0010	815 Robotic USB Sample Processor XL with one work station and one membrane pump
2.815.0020	815 Robotic USB Sample Processor XL with one work station and two membrane pumps
2.815.0030	815 Robotic USB Sample Processor XL with one work station and no membrane pump
2.815.0110	815 Robotic USB Sample Processor XL with two work stations and two membrane pumps
2.815.0120	815 Robotic USB Sample Processor XL with two work stations and four membrane pumps
2.815.0130	815 Robotic USB Sample Processor XL with two work stations and no membrane pump

2.815.4110	815 Robotic Soliprep for LC

2.786.0010	786 Swing Head with robotic transfer arm (left)
2.786.0020	786 Swing Head with robotic transfer arm (right)
2.786.0030	786 Swing Head with robotic transfer arm (left/right)
2.786.0040	786 Swing Head

6.2841.110	Rinsing Station

Liquid Handling

2.772.0110	772 Pump Unit
2.800.0010	800 Dosino
2.843.0020	843 Pump Unit with two membrane pumps
2.843.0120	843 Pump Unit with two peristaltic pumps

6.3032.120	Dosing Unit 2 mL
6.3032.150	Dosing Unit 5 mL
6.3032.210	Dosing Unit 10 mL
6.3032.220	Dosing Unit 20 mL
6.3032.250	Dosing Unit 50 mL

6.5330.040	IC equipment for liquid handling with Dosino
6.5330.070	IC equipment for Metrohm intelligent Pick-up Injection Technique (MiPuT)
6.5330.080	IC equipment for Metrohm intelligent Partial Loop Injection Technique (MiPT)

Stirrers

2.741.0010	741 Magnetic stirrer for sample positions
2.801.0010	801 Magnetic stirrer for external position
2.802.0020	802 Propeller stirrer

Sample vessels and closures

6.2743.050	11 mL sample vial, 2'000 pieces (PP)
6.2743.057	11 mL sample vial, 200 pieces (PP)
6.2743.040	2.5 mL sample vial, 2'000 pieces (PP)
6.2743.047	2.5 mL sample vial, 200 pieces (PP)
6.2743.070	Perforated stoppers for 11 and 2.5 mL sample vial, 2'000 pieces
6.2743.077	Perforated stoppers for 11 and 2.5 mL sample vial, 200 pieces

6.2743.100	0.7 mL sample vial, 1'000 pieces, PP
6.2743.107	0.7 mL sample vial, 100 pieces, PP
6.2743.110	0.3 mL sample vial, 1'000 pieces, PP
6.2743.117	0.3 mL sample vial, 100 pieces, PP
6.2743.120	Septum for 0.7 and 0.3 mL sample vial, 1'000 pieces
6.2743.127	Septum for 0.7 and 0.3 mL sample vial, 100 pieces

6.2820.000	Aluminum foil for closing large-volume sample vessels

Order numbers and information on sample racks and other sample vessels can be found in the table on page 20.

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