

# ION CHROMATOGRAPHY SYSTEM S 150

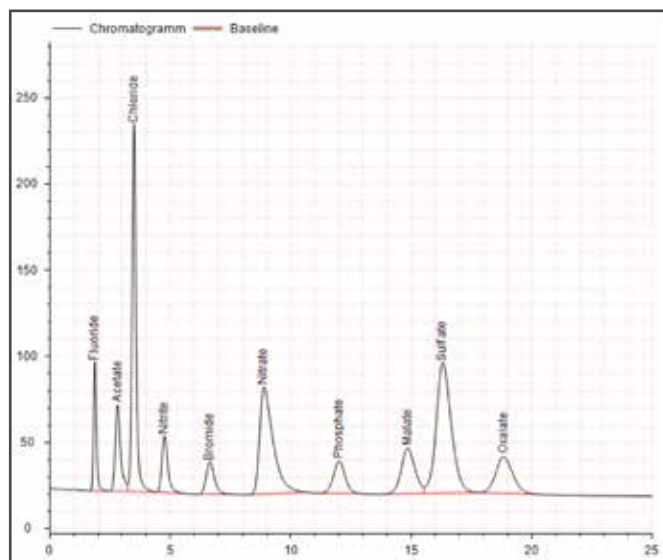
- ◆ ANION & CATION ANALYSIS
- ◆ ENVIRONMENTAL ANALYSIS
- ◆ WATER ANALYSIS



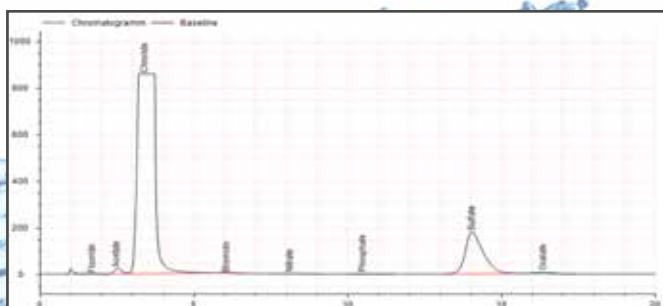
# ION CHROMATOGRAPHY

Ion chromatography is an analytical separation method used in chemistry and biology. This chromatographic process is used to separate ions according to their charge. Using a liquid mobile phase, the charged analytes are passed through a stationary phase (polymer- or silicabased) modified with oppositely charged functional groups. Depending on their charge number, ion size and some non-specific interactions with the stationary phase, the ions are retarded at different rates.

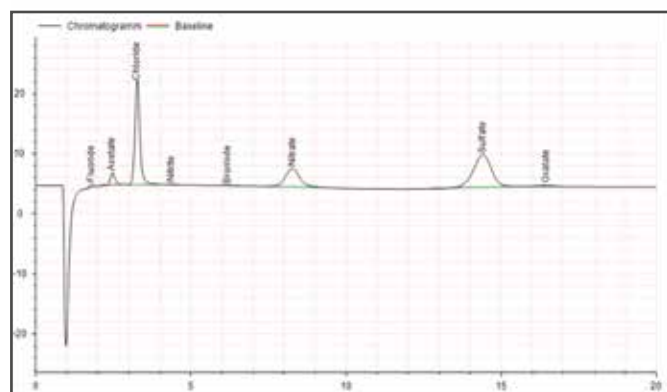
Depending on the analyte physical properties, these can then be detected and quantified by conductivity measurement, UV absorption or radiation measurement.



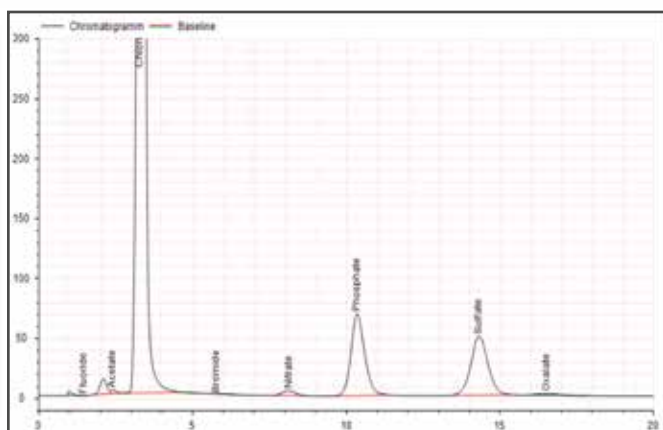
Extended Water Application (Anions)



Sea Water (Anions)



Rain Water (Anions)



Urine (Anions)

## IC Applications

The fields of application of ion chromatography are manifold. One of the most important areas of application is certainly the investigation of aqueous systems such as drinking water and wastewater. It is above all fertilizers from agriculture that pollute the waters with high levels of nitrates. But also, the determination of organic acids in foods such as in wine and fruit juices or the quantification of trace elements such as iron in dietary supplements is possible.

- Parameters
  - Anions
  - Cations
  - Organic acids
  - Transition metals
  - Amines
- Typical Applications
  - Drinking water
  - Tap water
  - Sea water
  - Waste water
  - Rain water
  - Ultra-trace determination in electronic and power plants
  - Quality control and analysis of impurities
  - Elemental analysis (Wickbold & Schoeninger)
  - Pharmaceuticals
  - Urine analysis



Water analysis for water treatment plants



Cooling water control for power plants



Ground water analysis for quality control



# ION CHROMATOGRAPHY SYSTEM S 150

## Complete Family of IC Systems

The ***Ion Chromatography System S 150*** is a family of modular systems which can be customized to any application needs for the determination of a multitude of ions.

### S 1130 Pump System

The ***Sykam S 1130 HPLC Pump System*** is a very flexible and powerful HPLC solvent delivery system.

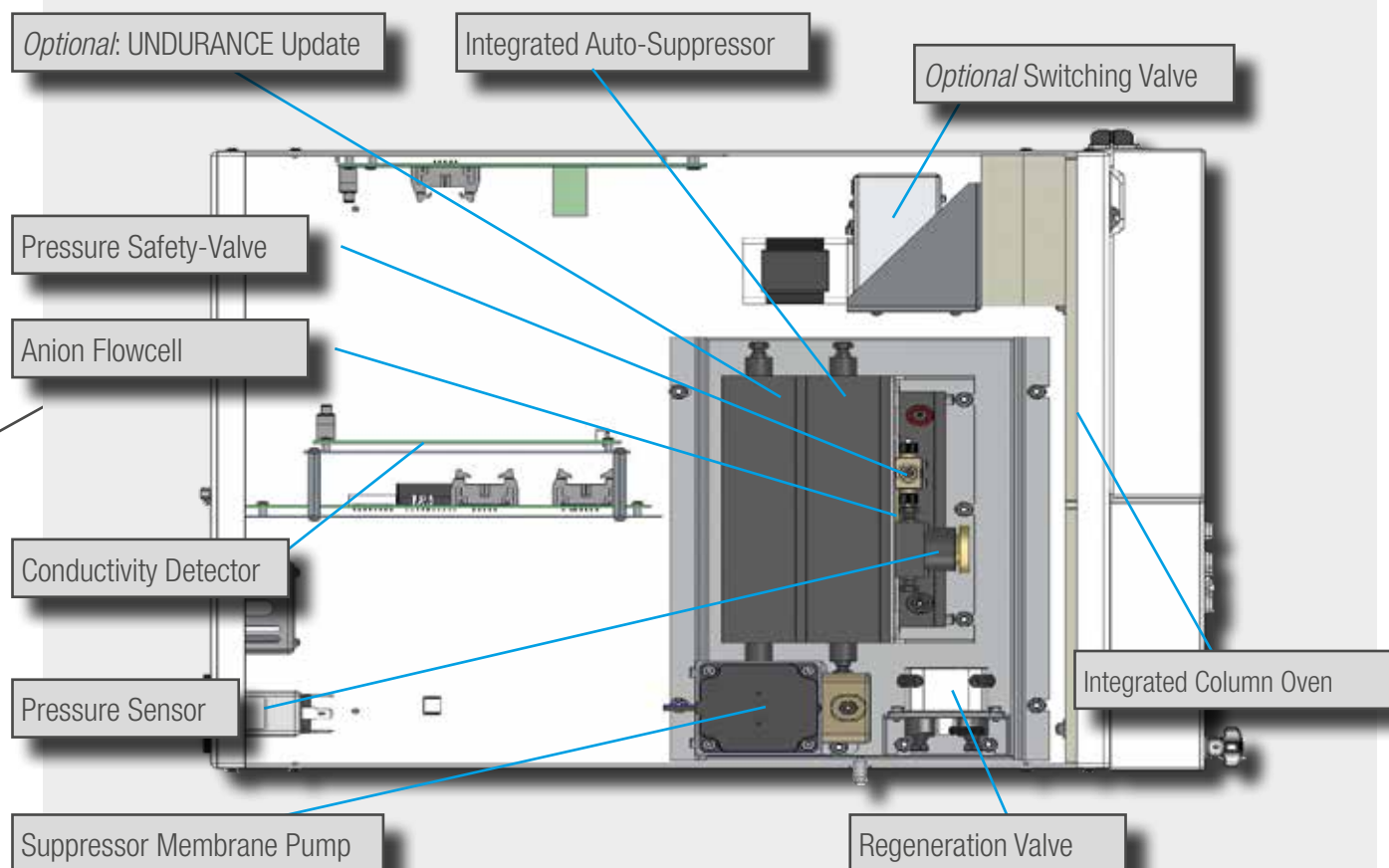
The possible configurations include an Isocratic or Quaternary Gradient Pump.

### S 5300 Sample Injector

The ***Sykam S 5300 Sample Injector System*** is a reliable and accurate HPLC autosampler with excellent reproducibility and linearity properties. Variable vial racks and adaptors for microtiter plates as well as a multitude of options make this system highly adaptable and suitable for any analytical application.



## S 150 Ion Chromatography Module



# SYKAM AUTO-SUPPRESSOR

The **Sykam Auto-Suppressor** is a robust chemical suppression system to increase the sensitivity of the anion analysis by reducing the background conductivity of the eluent.

## Trouble-Free Operation

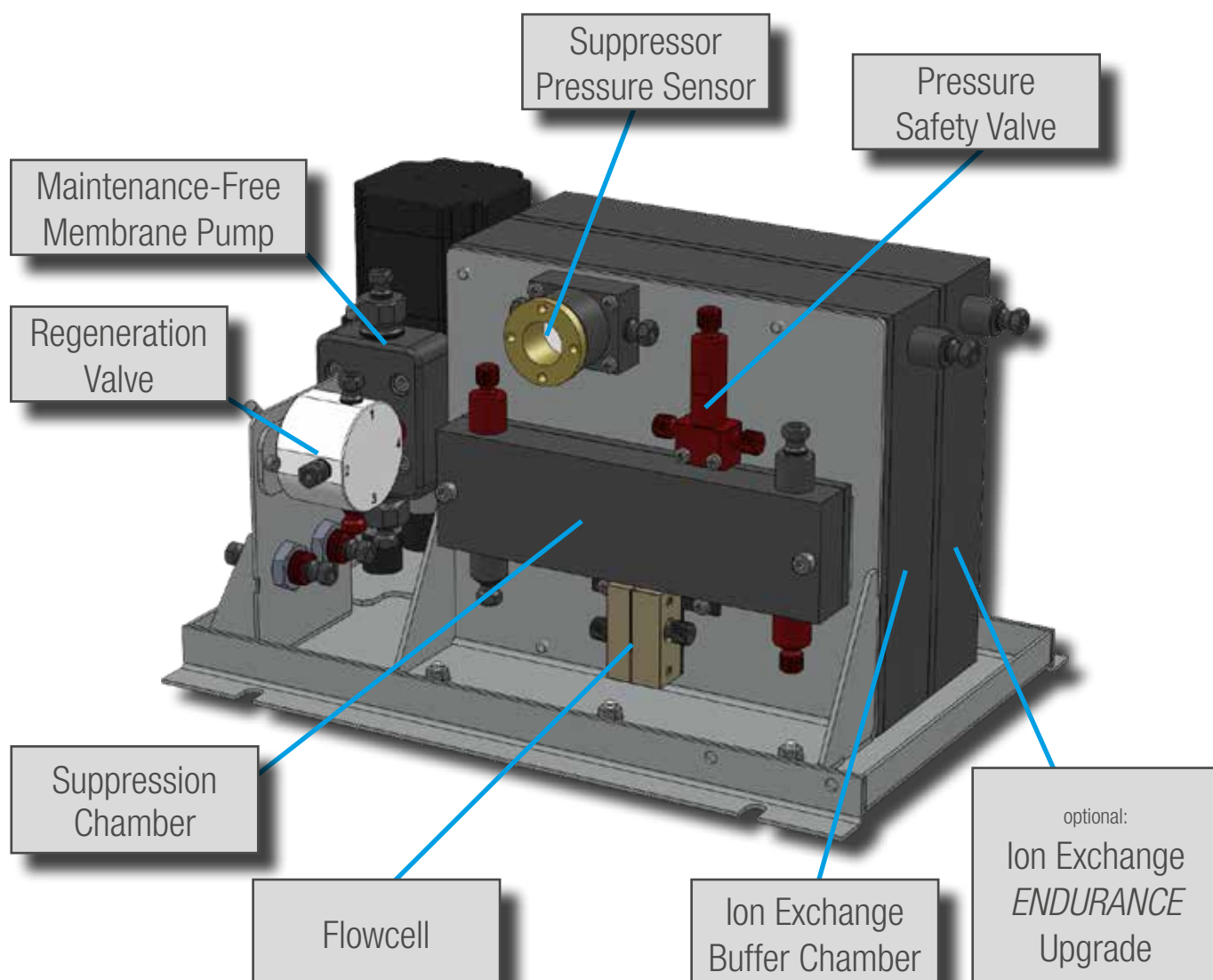
The **Sykam Auto-Suppressor's** membrane is protected by a **Pressure Safety Valve**, which opens when the pressure of the eluent flow is becoming too high. No annoying and expensive exchange of the membrane is needed!

The membrane pump is maintenance free in its

operation and the proper function is monitored by a built-in pressure sensor.

The closed suppression circuit provides continuous operation over a long time without the need of regeneration solutions. The capacity of the **Ion Exchange Buffer Chamber** can be increased with an **ENDURANCE** upgrade.

When the chamber's capacity is reached it can be easily regenerated without effort and need not to be replaced.



## Working Principle

Conductivity detection of anions in ion chromatography requires reduction of background conductivity to increase the detection sensitivity.

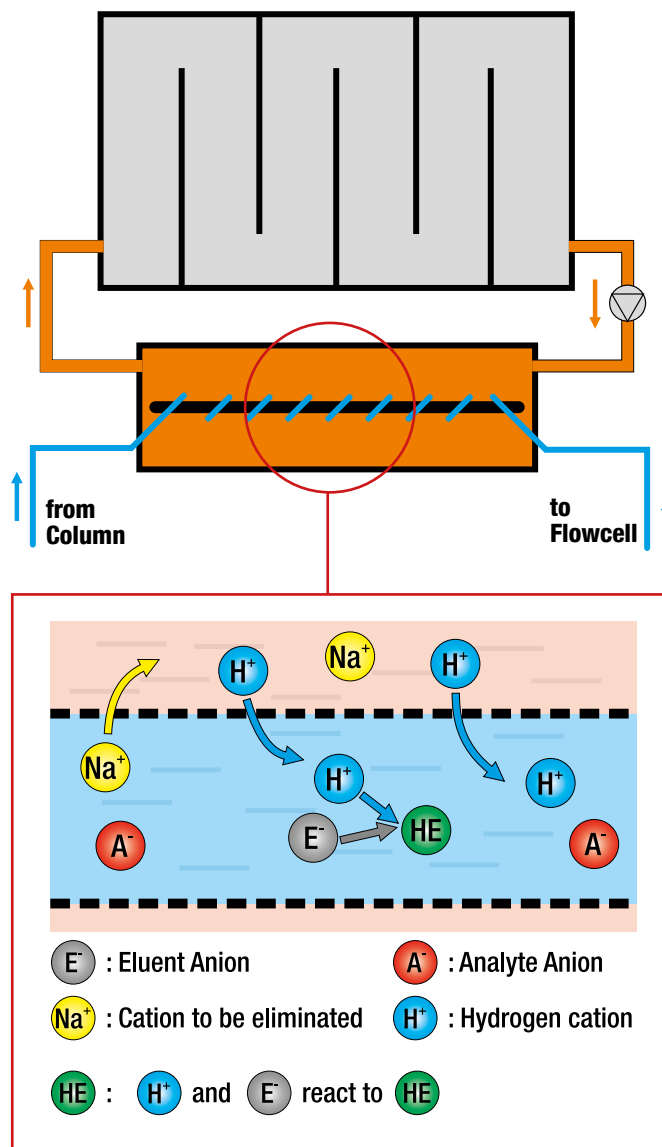
The eluent buffer (e.g.  $\text{Na}_2\text{CO}_3$  /  $\text{NaHCO}_3$ ) used to perform anion chromatography disturbs the analyte measurement (e.g. chloride, nitrate, sulfate).

The *Sykam Auto-Suppressor* substitutes counter cations of the eluent (e.g.  $\text{Na}^+$ ) with hydrogen ions. This transfers the eluent anion (e.g.  $\text{CO}_3^{2-}$ ) in a low conductive form and reduces the background conductivity.

The analyte anions will not be interfered by this process. Their hydrogen forms (e.g. hydrochloric acid) are still dissociated.

The *Sykam Auto-Suppressor* combines:

- an ion exchange buffer chamber, filled with a durable and customer regenerative cation exchanger
- a transfer solution to transport hydrogen cations to the mobile phase and buffer cations to the resin
- and a membrane capillary that allows the transfer of hydrogen- and eluent cations







# SYKAM ION CHROMATOGRAPHY SYSTEMS



# COMPACT ANION IC SYSTEM S 155-A/C

The **Compact Ion Chromatograph S 155** is a economic solution for low sample throughput.

The **S 155** is an all-in-one IC system with integrated anion auto-suppressor, column oven and 1-channel conductivity detector.

It can be upgraded with an online vacuum de-gasser, eluent selection valve or inert gas supply regulator.



# ORDER INFORMATION

## Compact IC System S 155-A

Catalog No	Description	consisting of:
<b>S008544</b>	<b>Compact Ion Chromatography System</b>	S 155 Ion Chromatography System
	for Anion analysis	- integrated Anion auto-suppressor
	without Data System and Separation Column	- integrated column oven
		- integrated manual injection valve S 6120 w. 50 µl sample loop
		- integrated 1-Channel conductivity detector
		- integrated isocratic eluent pump

## Compact IC System S 155-C

Catalog No	Description	consisting of:
<b>S008545</b>	<b>Compact Ion Chromatography System</b>	S 155 Ion Chromatography System
	for Cation analysis	- integrated column oven
	without Data System and Separation Column	- integrated manual injection valve S 6120 w. 50 µl sample loop
		- integrated 1-Channel conductivity detector
		- integrated isocratic eluent pump

## Upgrade Options

Catalog No	Description	Notes
<b>S003581</b>	<b>Vacuum Degasser</b>	Online 1-Channel vacuum degasser
<b>S008547</b>	<b>Eluent Selection Valve S 6131</b>	Switching valve for 2 eluents and second 2000 ml eluent bottle
<b>S008546</b>	<b>Inert Gas Supply</b>	Gas regulator for inert gas supply and 2000 ml coated eluent bottle

# MANUAL ANION IC SYSTEM S 151-M/G

The *Manual Anion Ion Chromatograph S 151-M /G* is a economic solution for low sample throughput.

The S 151-M features the anion membrane suppressor for the sensitive detection of anions. It can be upgraded to an automatic system at any time.



# ORDER INFORMATION

## Manual Isocratic Anion IC System S 151-M

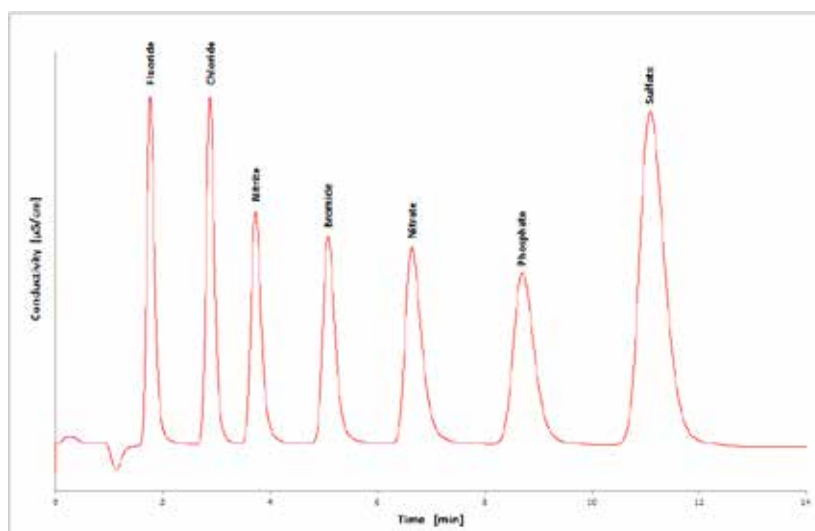
Catalog No	Description	consisting of:
<b>S003695</b>	<b>Manual Isocratic IC System</b>	S 150 Ion Chromatography Module, including Column Oven;
	Anion Separation	S 1130 Isocratic Pump, analytical, Peek; including 1-Channel Degasser;
	without Data System and Separation Column	S 6120 Injection Valve, Peek;
		S 7150 Reagent Organizer, isocratic, including 1 bottle (1000 ml);; without gas regulator
		Auto-Suppressor Module;
		1-Channel Conductivity Detector

## Manual Gradient Anion IC System S 151-G

Catalog No	Description	consisting of:
<b>S004162</b>	<b>Manual Gradient IC System</b>	S 150 Ion Chromatography Module, including Column Oven;
	Anion Separation	S 1130 Quaternary Gradient Pump, analytical, Peek; including 4-Channel Degasser;
	without Data System and Separation Column	S 6120 Injection Valve, Peek;
		S 7150 Reagent Organizer, isocratic, including 4 bottles (1000 ml); without gas regulator
		Auto-Suppressor Module;
		1-Channel Conductivity Detector

## Update Options

Catalog No	Description	Notes
<b>S003583</b>	<b>Auto-Suppressor ENDURANCE Update</b>	Capacity upgrade for Auto-Suppressor
<b>S003585</b>	<b>Dual Channel Detector Upgrade</b>	S 150 Ion Chromatography Module (2nd detector channel)
<b>S003846</b>	<b>S 7155 Reagent Organizer with Gas Regulator</b>	Analytical, incl. 4 bottles (1000 ml)
<b>S000172</b>	<b>S 3250 UV/Vis Detector</b>	Update for difficult sample matrices (e.g. high Cl <sup>-</sup> concentrations)
<b>S000203</b>	<b>S 3250 Flowcell</b>	Analytical, PEEK
	<b>Integrated Switching Valve</b>	S 150 Ion Chromatography Module (integrated S6000 series Switching Valve)





# AUTOMATIC ANION IC SYSTEM S 151-A/AG

The *Automatic Anion IC System S 151-A/AG* is a modular system which can be customized to any application needs.



# ORDER INFORMATION

## Automatic Isocratic Anion IC System S 151-A

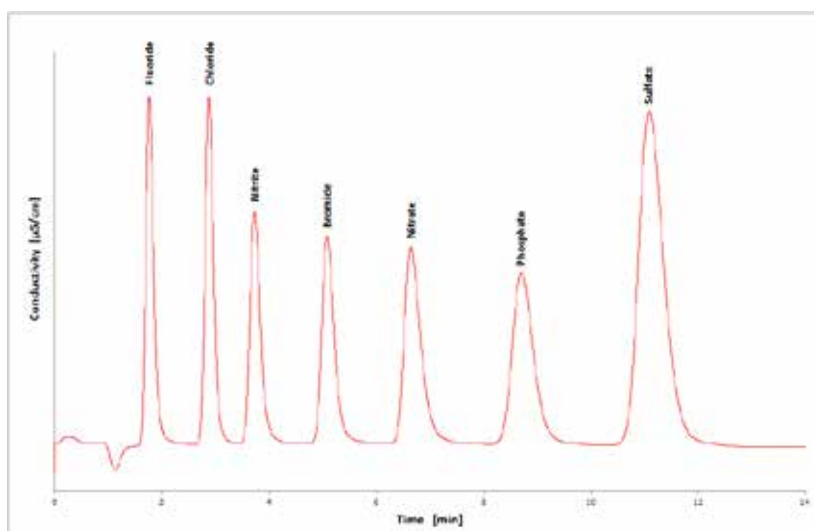
Catalog No	Description	consisting of:
<b>S004070</b>	<b>Automatic Isocratic IC System</b>	S 150 Ion Chromatography Module, including Column Oven;
	Anion Separation	S 1130 Isocratic Pump, analytical, Peek; including 1-Channel Degasser;
	without Data System and Separation Column	S 5300 Automatic Sample Injector with S 6115 Peek Valve, variable volume Mode
		S 7150 Reagent Organizer, isocratic, including 1 bottle (1000 ml);; without gas regulator
		Auto-Suppressor Module;
		1-Channel Conductivity Detector

## Automatic Gradient Anion IC System S 151-AG

Catalog No	Description	consisting of:
<b>S004161</b>	<b>Automatic Gradient IC System</b>	S 150 Ion Chromatography Module, including Column Oven;
	Anion Separation	S 1130 Quaternary Gradient Pump, analytical, Peek; including 4-Channel Degasser;
	without Data System and Separation Column	S 5300 Automatic Sample Injector with S 6115 Peek Valve, variable volume Mode
		S 7150 Reagent Organizer, isocratic, including 4 bottles (1000 ml);; without gas regulator
		Auto-Suppressor Module;
		1-Channel Conductivity Detector

## Update Options

Catalog No	Description	Notes
<b>S003583</b>	<b>Auto-Suppressor ENDURANCE Update</b>	Capacity upgrade for Auto-Suppressor
<b>S003585</b>	<b>Dual Channel Detector Upgrade</b>	S 150 Ion Chromatography Module (2nd detector channel)
<b>S003846</b>	<b>S 7155 Reagent Organizer with Gas Regulator</b>	Analytical, incl. 4 bottles (1000 ml)
<b>S000172</b>	<b>S 3250 UV/Vis Detector</b>	Update for difficult sample matrices (e.g. high Cl <sup>-</sup> concentrations)
<b>S000203</b>	<b>S 3250 Flowcell</b>	Analytical, PEEK
	<b>Integrated Switching Valve</b>	S 150 Ion Chromatography Module (integrated S6000 series Switching Valve)



# MANUAL CATION IC SYSTEM S 152-M/G

The *Manual Cation IC System S 152-A/G* is a modular system which can be customized to any application needs.



# ORDER INFORMATION

## Manual Isocratic Cation IC System S 152-M

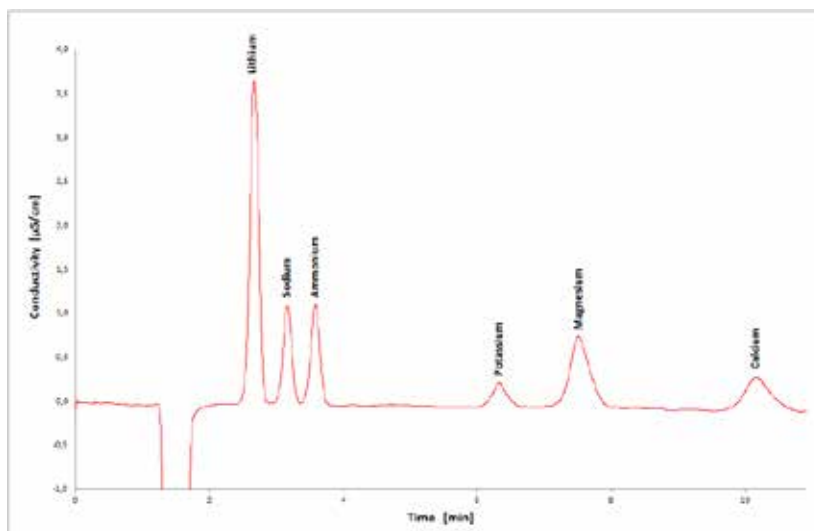
Catalog No	Description	consisting of:
<b>S004851</b>	<b>Manual Isocratic IC System</b>	S 150 Ion Chromatography Module, including Column Oven;
	Cation Separation	S 1130 Isocratic Pump, analytical, Peek; including 1-Channel Degasser;
	without Data System and Separation Column	S 6120 Injection Valve, Peek;
	without Auto-Suppressor	S 7150 Reagent Organizer, isocratic, including 1 bottle (1000 ml); without gas regulator
		1-Channel Conductivity Detector

## Manual Gradient Cation IC System S 152-G

Catalog No	Description	consisting of:
<b>S005115</b>	<b>Manual Gradient IC System</b>	S 150 Ion Chromatography Module, including Column Oven;
	Cation Separation	S 1130 Quaternary Gradient Pump, analytical, Peek; including 4-Channel Degasser;
	without Data System and Separation Column	S 6120 Injection Valve, Peek;
	without Auto-Suppressor	S 7150 Reagent Organizer, isocratic, including 4 bottles (1000 ml); without gas regulator
		1-Channel Conductivity Detector

## Update Options

Catalog No	Description	Notes
<b>S003582</b>	<b>Auto-Suppressor Module</b>	S 8310 Autosuppressor Module (for update of Cation system to Anion determination)
<b>S003583</b>	<b>Auto-Suppressor ENDURANCE Update</b>	Capacity upgrade for Auto-Suppressor
<b>S003585</b>	<b>Dual Channel Detector Upgrade</b>	S 150 Ion Chromatography Module (2nd detector channel)
<b>S003846</b>	<b>S 7155 Reagent Organizer with Gas Regulator</b>	Analytical, incl. 4 bottles (1000 ml)
<b>S000172</b>	<b>S 3250 UV/Vis Detector</b>	Update for difficult sample matrices (e.g. high Cl <sup>-</sup> concentrations)
<b>S000203</b>	<b>S 3250 Flowcell</b>	Analytical, PEEK
	<b>Integated Switching Valve</b>	S 150 Ion Chromatography Module (integrated S6000 series Switching Valve)



# AUTOMATIC CATION IC SYSTEM S 152-A/AG

The **Automatic Anion IC System S 152-A/AG** is a modular system which can be customized to any application needs.





# ORDER INFORMATION

## Automatic Isocratic Cation IC System S 152-A

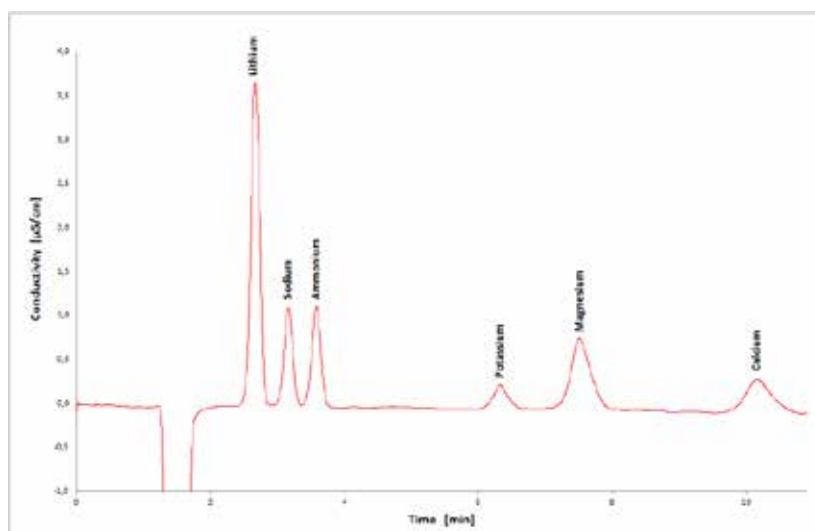
Catalog No	Description	consisting of:
<b>S005452</b>	<b>Automatic Isocratic IC System</b>	S 150 Ion Chromatography Module, including Column Oven;
	Cation Separation	S 1130 Isocratic Pump, analytical, Peek; including 1-Channel Degasser;
	without Data System and Separation Column	S 5300 Automatic Sample Injector with S 6115 Peek Valve, variable volume Mode
		S 7150 Reagent Organizer, isocratic, including 1 bottle (1000 ml); without gas regulator
		WITHOUT Auto-Suppressor Module;
		1-Channel Conductivity Detector

## Automatic Gradient Cation IC System S 152-AG

Catalog No	Description	consisting of:
<b>S004161</b>	<b>Automatic Gradient IC System</b>	S 150 Ion Chromatography Module, including Column Oven;
	Cation Separation	S 1130 Quaternary Gradient Pump, analytical, Peek; including 4-Channel Degasser;
	without Data System and Separation Column	S 5300 Automatic Sample Injector with S 6115 Peek Valve, variable volume Mode
		S 7150 Reagent Organizer, isocratic, including 4 bottles (1000 ml); without gas regulator
		WITHOUT Auto-Suppressor Module;
		1-Channel Conductivity Detector

## Update Options

Catalog No	Description	Notes
<b>S003582</b>	<b>Auto-Suppressor Module</b>	S 8310 Autosuppressor Module (for update of Cation system to Anion determination)
<b>S003583</b>	<b>Auto-Suppressor ENDURANCE Update</b>	Capacity upgrade for Auto-Suppressor
<b>S003585</b>	<b>Dual Channel Detector Upgrade</b>	S 150 Ion Chromatography Module (2nd detector channel)
<b>S003846</b>	<b>S 7155 Reagent Organizer with Gas Regulator</b>	Analytical, incl. 4 bottles (1000 ml)
<b>S000172</b>	<b>S 3250 UV/Vis Detector</b>	Update for difficult sample matrices (e.g. high Cl <sup>-</sup> concentrations)
<b>S000203</b>	<b>S 3250 Flowcell</b>	Analytical, PEEK
	<b>Intergated Switching Valve</b>	S 150 Ion Chromatography Module (integrated S6000 series Switching Valve)



# AUTOMATIC DUAL IC SYSTEM S 153-A/AG DUAL

The *Automatic Ion Chromatograph S 153-A/AG Dual* is a modular system which can be customized to any application needs.



# ORDER INFORMATION

## Automatic Isocratic Dual IC System S 153-A Dual

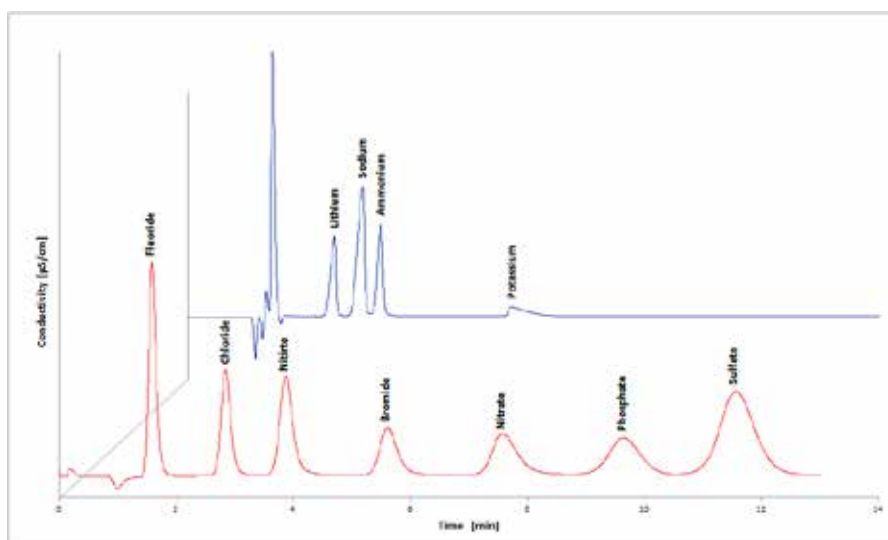
Catalog No	Description	consisting of:
<b>S004671</b>	<b>Automatic Dual Isocratic IC System</b>	S 150 Ion Chromatography Module, including Column Oven;
	Anion & Cation simultaneous Separation	2x S 1130 Isocratic Pump, analytical, Peek; including 1-Channel Degasser;
	without Data System and Separation Column	S 5300 Automatic Sample Injector with S 6165 Peek Valve, variable volume Mode
		S 7150 Reagent Organizer, isocratic, including 2 bottles (1000 ml); without gas regulator
		Auto-Suppressor Module;
		2-Channel Conductivity Detector

## Automatic Gradient Dual IC System S 153-AG Dual

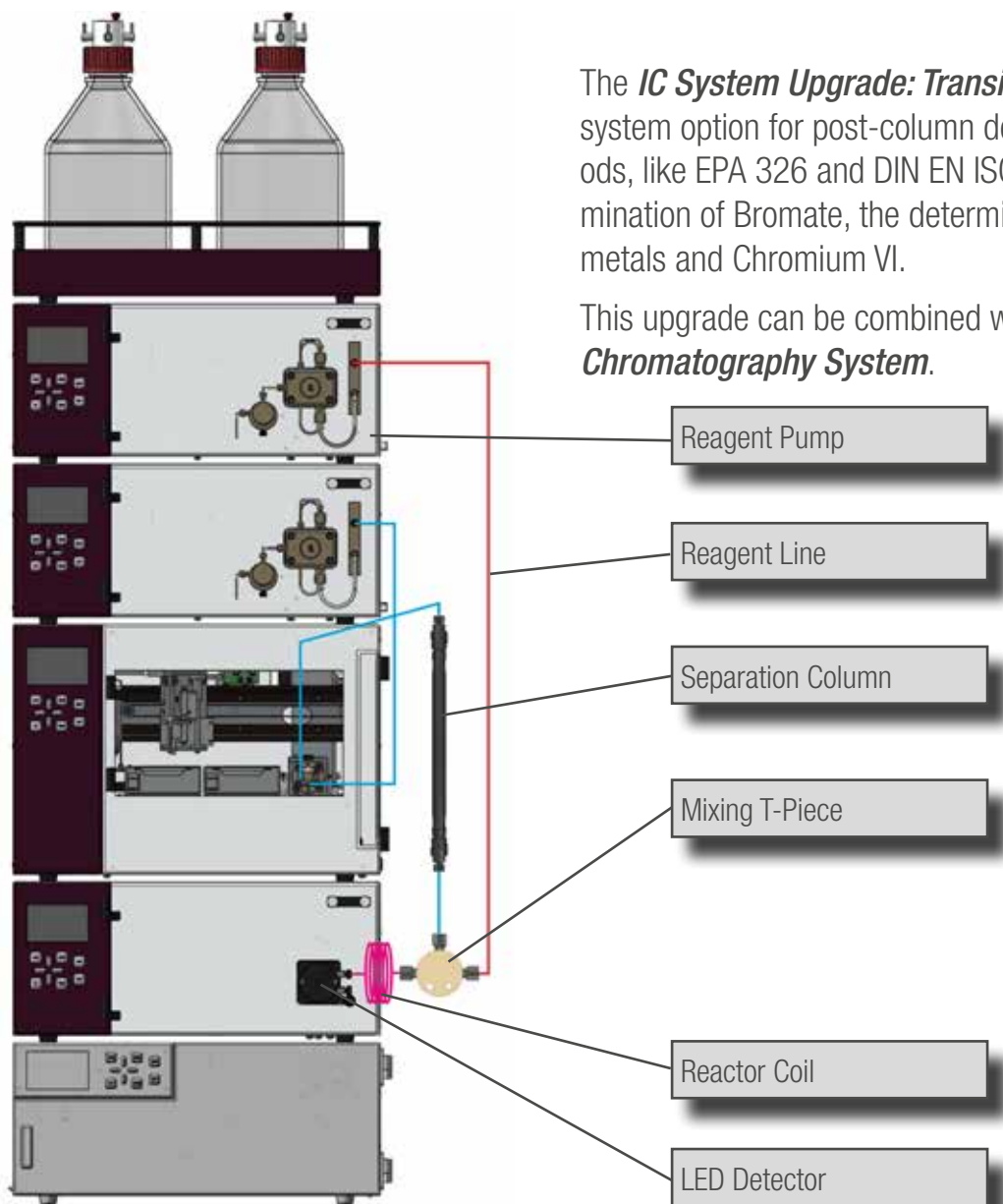
Catalog No	Description	consisting of:
<b>S004882</b>	<b>Automatic Dual Gradient IC System</b>	S 150 Ion Chromatography Module, including Column Oven;
	Anion & Cation simultaneous Separation	1x S 1130 Quaternary Gradient Pump, analytical, Peek; including 4-Channel Degasser;
		1x S 1130 Isocratic Pump, analytical, Peek; including 1-Channel Degasser;
	without Data System and Separation Column	S 5300 Automatic Sample Injector with S 6165 Peek Valve, variable volume Mode
		S 7150 Reagent Organizer, isocratic, including 4 bottles (1000 ml); without gas regulator
		Auto-Suppressor Module;
		2-Channel Conductivity Detector

## Update Options

Catalog No	Description	Notes
<b>S003583</b>	<b>Auto-Suppressor ENDURANCE Update</b>	Capacity upgrade for Auto-Suppressor
<b>S003585</b>	<b>Dual Channel Detector Upgrade</b>	S 150 Ion Chromatography Module (2nd detector channel)
<b>S003846</b>	<b>S 7155 Reagent Organizer with Gas Regulator</b>	Analytical, incl. 4 bottles (1000 ml)
<b>S000172</b>	<b>S 3250 UV/Vis Detector</b>	Update for difficult sample matrices (e.g. high Cl <sup>-</sup> concentrations)
<b>S000203</b>	<b>S 3250 Flowcell</b>	Analytical, PEEK
	<b>Integrated Switching Valve</b>	S 150 Ion Chromatography Module (integrated S6000 series Switching Valve)



# IC SYSTEM UPGRADE: TRANSITION METALS



The **IC System Upgrade: Transition Metals** is a system option for post-column derivatization methods, like EPA 326 and DIN EN ISO 11206 for determination of Bromate, the determination of transition metals and Chromium VI.

This upgrade can be combined with any **S 150 Ion Chromatography System**.

## ORDER INFORMATION

### IC System Upgrade: Metal Ions

Catalog No	Description	consisting of:
<b>S008038</b>	<b>IC System Upgrade: Transition Metals</b>	S 1130 Isocratic Pump, analytical, Peek; including 1-Channel Degasser;
	for determination of metal ions and other specific	S 3212 LED Detector, with analytical Flowcell (PEEK); 525 nm (460nm CrIV)
	ions via post-column derivatization	Reactor Coil with T-Piece

# TECHNICAL SPECIFICATIONS

## S 150 Ion Chromatography Module

<b>Wetted Materials:</b>	PEEK, PPS, PTFE, Stainless Steel <sup>1</sup>
<b>Dimensions:</b> (W x H x D)	396 x 165 x 478 mm
<b>Power Supply:</b>	100 - 250 ~V (47 - 63 Hz)

<sup>1</sup> Flowcell only

### Column Oven

<b>Temperature Range:</b>	+30°C to +100°C <sup>1</sup>
<b>Temperature Accuracy:</b>	< 0.1 °C
<b>Switching Valve:</b>	<i>optional:</i> any <b>S 6000</b> Series Valve

<sup>1</sup> Temperature range at 20°C ambient

### Conductivity Detector

<b>Measuring Range:</b>	0 to 20,000 µS/cm
<b>Flowcell Volume:</b>	0.76 µl

### Auto-Suppressor

<b>Pump System:</b>	Membrane Pump
<b>Safety Systems:</b>	- Pressure Sensor - Pressure Valve

## S 1130 Isocratic Pump System

<b>Wetted Materials:</b>	PEEK, Teflon AF®, PVDF, Ceramics, Sapphire
<b>Flow Rate:</b>	Programmable Analytical: 0.001 - 10.000 ml/min
<b>Flow Accuracy:</b>	± 1.0 % 1.000 ml / min
<b>Flow Precision:</b>	± 0.1 % RSD 1.000 ml/min
<b>Pressure Range:</b>	0 – 40 MPa (0 – 6000 PSI)
<b>Pressure Pulsation:</b>	typical < 0.1 MPa or < 1.0 %
<b>Compressibility Compensation:</b>	user-adjustable for different solvents
<b>Vacuum Degassing:</b>	< 20% dissolved gases remaining in water @ 1.000 ml/min
<b>Dimensions:</b> (W x H x D)	396 x 165 x 478 mm
<b>Power Supply:</b>	100 - 250 ~V (47 - 63 Hz)

## S 5300 Sample Injector System

<b>Wetted Materials:</b>	PEEK, PPS, PVDF
<b>Sample Capacity:</b>	120 (1.5 ml), 192 (microtiter plates)
<b>Injection Volume:</b>	Programmable 0.1 - 999.9 µl
<b>Sample Heating/Cooling:</b>	<i>optional:</i> +4 to +60 °C
<b>Injection Precision:</b>	< 0.5 % Variable Volume Injection (10 µl; typically ~0.25 %)
<b>Linearity:</b>	Correlation Factor > 0.999 (10 µl injection volume, 500 µl Syringe)
<b>Carry Over:</b>	< 0.05 % with wash program
<b>Dimensions:</b> (W x H x D)	396 x 275 x 478 mm
<b>Power Supply:</b>	100 - 250 ~V (47 - 63 Hz)

## S 1130 Quaternary Gradient Pump System

<b>Wetted Materials:</b>	PEEK, Teflon AF®, PVDF, Ceramics, Sapphire
<b>Flow Rate:</b>	Programmable Analytical: 0.001 - 10.000 ml/min
<b>Flow Accuracy:</b>	± 1.0 % 1.000 ml / min
<b>Flow Precision:</b>	± 0.1 % RSD 1.000 ml/min
<b>Pressure Range:</b>	0 – 40 MPa (0 – 6000 PSI)
<b>Pressure Pulsation:</b>	typical < 0.1 MPa or < 1.0 %
<b>Compressibility Compensation:</b>	user-adjustable for different solvents
<b>Vacuum Degassing:</b>	< 20% dissolved gases remaining in water @ 1.000 ml/min
<b>Gradient Range:</b>	0.0 – 100.0 %, 4 channels
<b>Gradient Accuracy:</b>	< 0.50 %
<b>Gradient Mixing:</b>	Active
<b>Mixer Volume:</b>	adjustable: 100 – 500 µl
<b>Dimensions:</b> (W x H x D)	396 x 165 x 478 mm
<b>Power Supply:</b>	100 - 250 ~V (47 - 63 Hz)



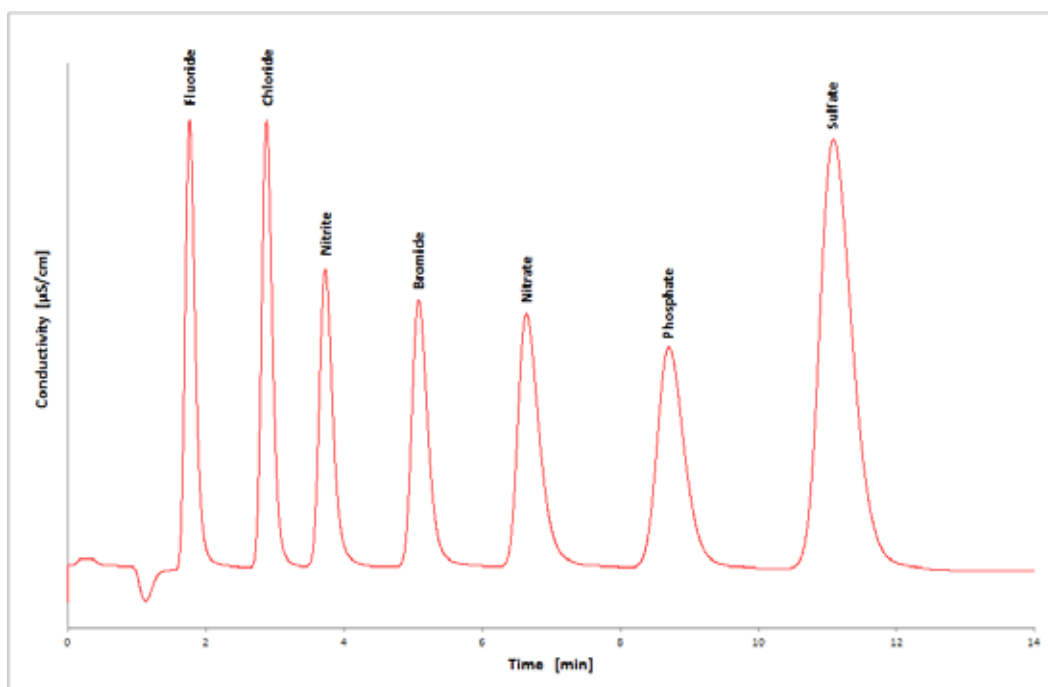


# SYKAM ION CHROMATOGRAPHY SEPARATION COLUMNS



# IC SEPARATION COLUMNS: ANIONS

## Anion Separation Column ION A01



### Applications

Conductivity Detection:

- Standard anions in aqueous samples
- Sulfite in drinking water

UV Detection (Post-Column Derivatization):

- Chromate

### Technical Specifications

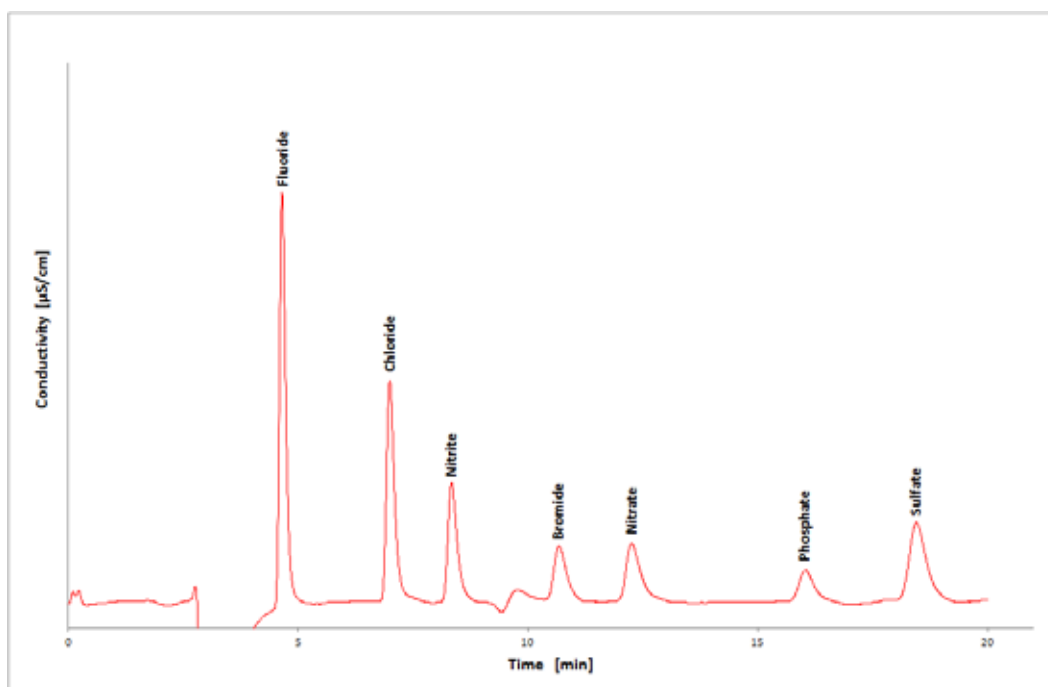
<b>Substrate:</b>	Polystyrene
<b>Particle Size:</b>	10 µm
<b>Column dimensions:</b>	2.6 x 150 mm
<b>Column material:</b>	PEEK
<b>Max. Pressure:</b>	20 MPa
<b>pH Range:</b>	1 ... 13
<b>Temp. Range:</b>	20 - 60 °C

## ORDER INFORMATION

### Anion Separation Column ION A01

Catalog No	Description	Dimensions
S003586	Anion Separation Column ION A01	2.6 x 150mm, 10 µm
S004732	Anion Guard Column AGC-1	2.6 x 20mm, 15 µm

## Anion Separation Column ION A04



### Applications

Conductivity Detection:

- Determination of Bromate in Aqueous Samples
- Chloride Phosphate and Sulfate in Red Wine
- Standard anions in aqueous samples

### Technical Specifications

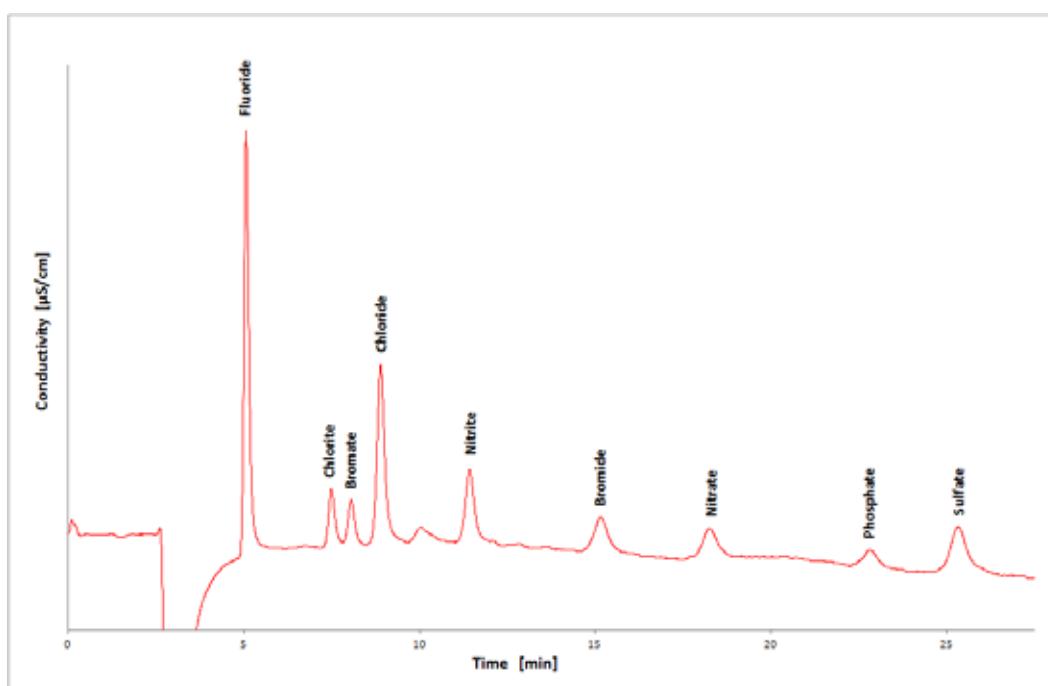
<b>Substrate:</b>	Polyvinyl alcohol
<b>Particle Size:</b>	5 µm
<b>Column dimensions:</b>	4 x 250 mm
<b>Column material:</b>	PEEK
<b>Max. Pressure:</b>	15 MPa
<b>pH Range:</b>	3 ... 12
<b>Temp. Range:</b>	20 - 60 °C

## ORDER INFORMATION

### Anion Separation Column ION A04

Catalog No	Description	Dimensions
S004593	Anion Separation Column ION A04	4.0 x 250mm, 5 µm
S008037	Anion Guard Column AGC-2	4.6 x 10mm, 9 µm

## Anion Separation Column ION A05



### Applications

Conductivity Detection:

- Bromate Chlorite in Aqueous Samples
- Bromate chlorite in drinking water
- Bromate chlorite in drinking water with PCD
- Standard anions after pre-conc in aqueous samples
- Standard anions in aqueous samples

### Technical Specifications

<b>Substrate:</b>	Polyvinyl alcohol
<b>Particle Size:</b>	5 µm
<b>Column dimensions:</b>	4 x 250 mm
<b>Column material:</b>	PEEK
<b>Max. Pressure:</b>	8-11 MPa
<b>pH Range:</b>	3 ... 12
<b>Temp. Range:</b>	20 - 60 °C

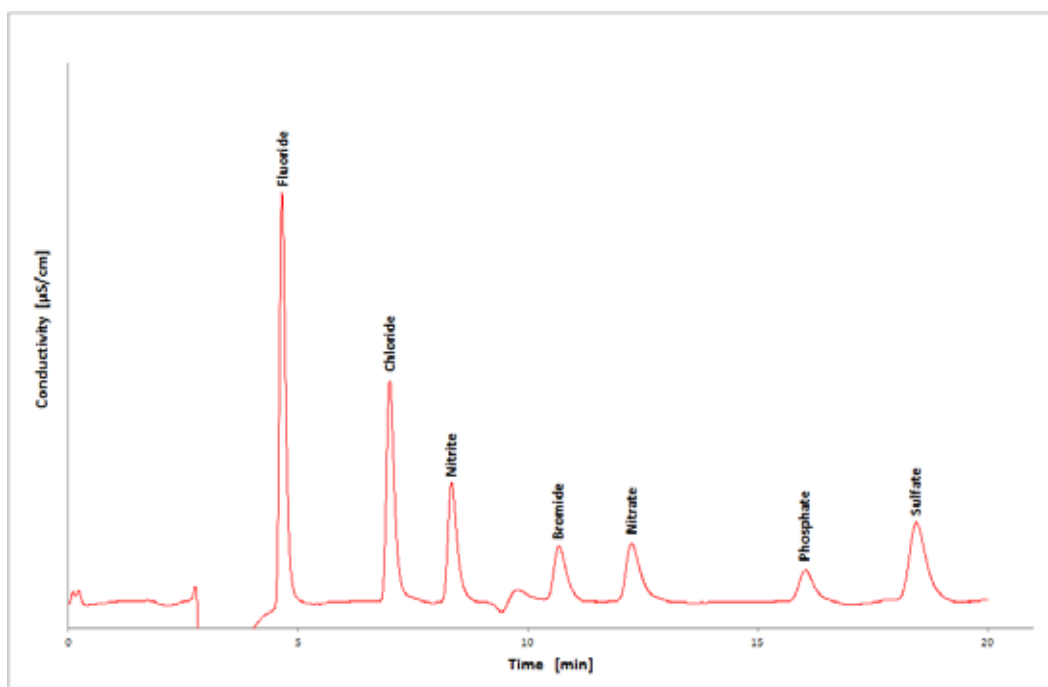
## ORDER INFORMATION

### Anion Separation Column ION A05

Catalog No	Description	Dimensions
S006790	Anion Separation Column ION A05	4.0 x 250mm, 5 µm
S008037	Anion Guard Column AGC-2	4.6 x 10mm, 9 µm



## Anion Separation Column ION A06



### Applications

Conductivity Detection:

- Phosphite and hypophosphite in a sulfate-oxalate matrix
- Standard anions iodide, Cr VI and SCN in aq samples
- Sulphur compounds

### Technical Specifications

<b>Substrate:</b>	Polyvinyl alcohol
<b>Particle Size:</b>	9 µm
<b>Column dimensions:</b>	4 x 250 mm
<b>Column material:</b>	PEEK
<b>Max. Pressure:</b>	34 MPa
<b>pH Range:</b>	3 ... 12
<b>Temp. Range:</b>	20 - 60 °C

## ORDER INFORMATION

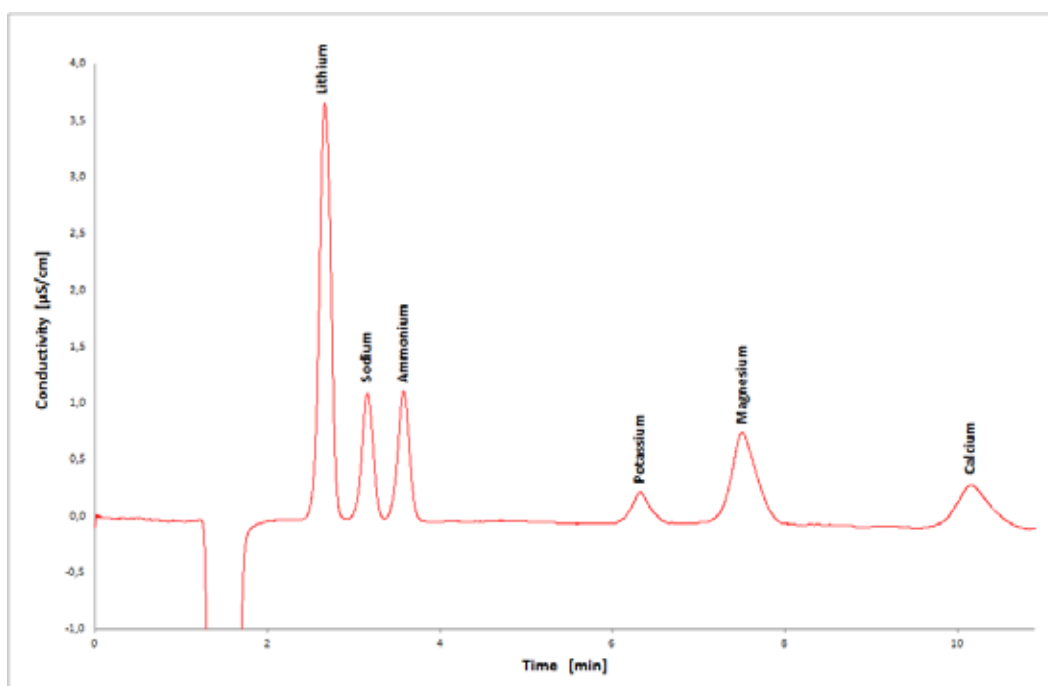
### Anion Separation Column ION A06

Catalog No	Description	Dimensions
S007270	Anion Separation Column ION A06	4.0 x 250mm, 9 µm
S008037	Anion Guard Column AGC-2	4.6 x 10mm, 9 µm



# IC SEPARATION COLUMNS: CATIONS

## Cation Separation Column ION C01



### Applications

Conductivity Detection:

- Standard Cations and Aminoalcohols in Aqueous Samples

### Technical Specifications

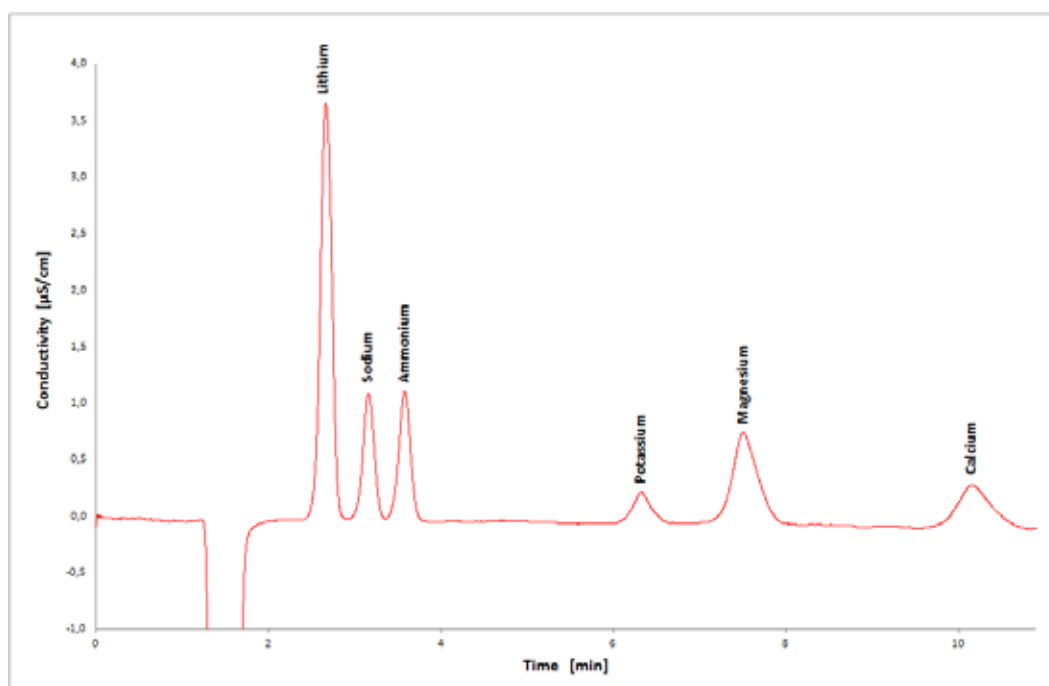
<b>Substrate:</b>	Silica
<b>Particle Size:</b>	5 µm
<b>Column dimensions:</b>	4.6 x 125 mm
<b>Column material:</b>	Stainless steel
<b>Max. Pressure:</b>	34 MPa
<b>pH Range:</b>	2 ... 7
<b>Temp. Range:</b>	20 - 45 °C

# ORDER INFORMATION

## Cation Separation Column ION C01

Catalog No	Description	Dimensions
S004193	Cation Separation Column ION C01	4.6 x 125mm, 5 µm
S004741	Cation Guard Column GCC-1	3.0 x 20mm, 5 µm (Kit with holder)

## Cation Separation Column ION C02



### Applications

Conductivity Detection:

- Standard Cations and Aminoalcohols in Aqueous Samples
- Standard cations plus Rb Cs in aqueous samples

### Technical Specifications

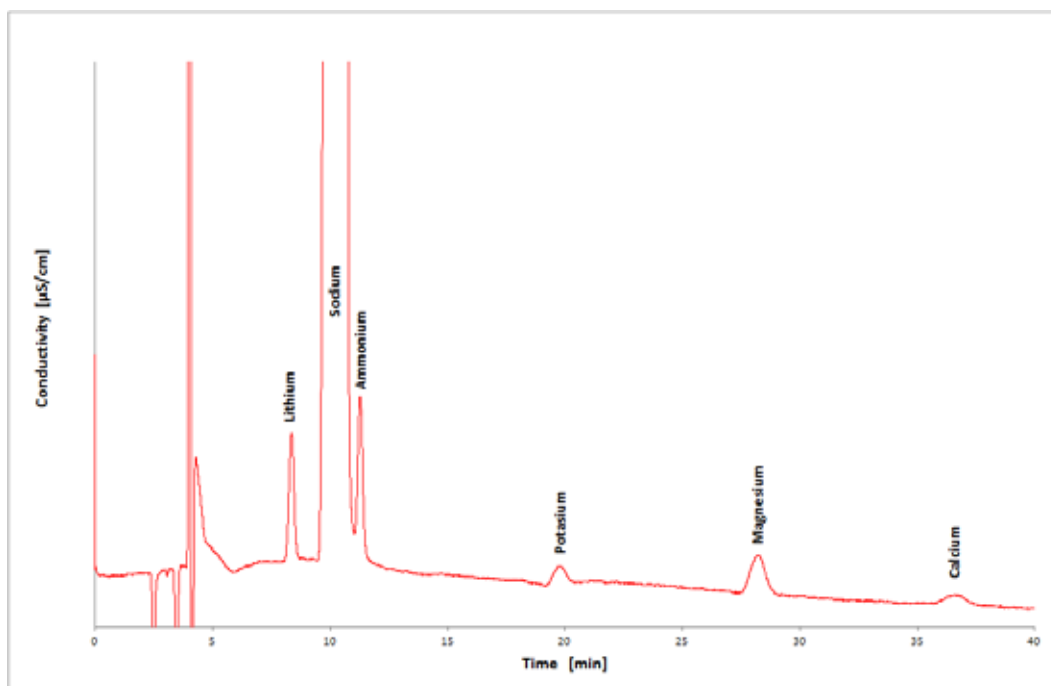
<b>Substrate:</b>	Silica
<b>Particle Size:</b>	5 µm
<b>Column dimensions:</b>	4.6 x 250 mm
<b>Column material:</b>	Stainless Steel
<b>Max. Pressure:</b>	34 MPa
<b>pH Range:</b>	2 ... 7
<b>Temp. Range:</b>	20 - 45 °C

## ORDER INFORMATION

### Cation Separation Column ION C02

Catalog No	Description	Dimensions
S005349	Cation Separation Column ION C02	4.6 x 250mm, 5 µm
S004741	Cation Guard Column GCC-1	3.0 x 20mm, 5 µm (Kit with holder)

## Cation Separation Column ION C05



### Applications

Conductivity Detection:

- Ammonium in presence of high sodium concentrations

### Technical Specifications

<b>Substrate:</b>	Silica
<b>Particle Size:</b>	5 µm
<b>Column dimensions:</b>	8 x 250 mm
<b>Column material:</b>	Stainless Steel
<b>Max. Pressure:</b>	34 MPa
<b>pH Range:</b>	2 ... 7
<b>Temp. Range:</b>	20 - 45 °C

## ORDER INFORMATION

### Cation Separation Column ION C05

Catalog No	Description	Dimensions
S004193	Cation Separation Column ION C05	8.0 x 250mm, 5 µm
S004741	Cation Guard Column GCC-1	8.0 x 20mm, 5 µm (Kit with holder)

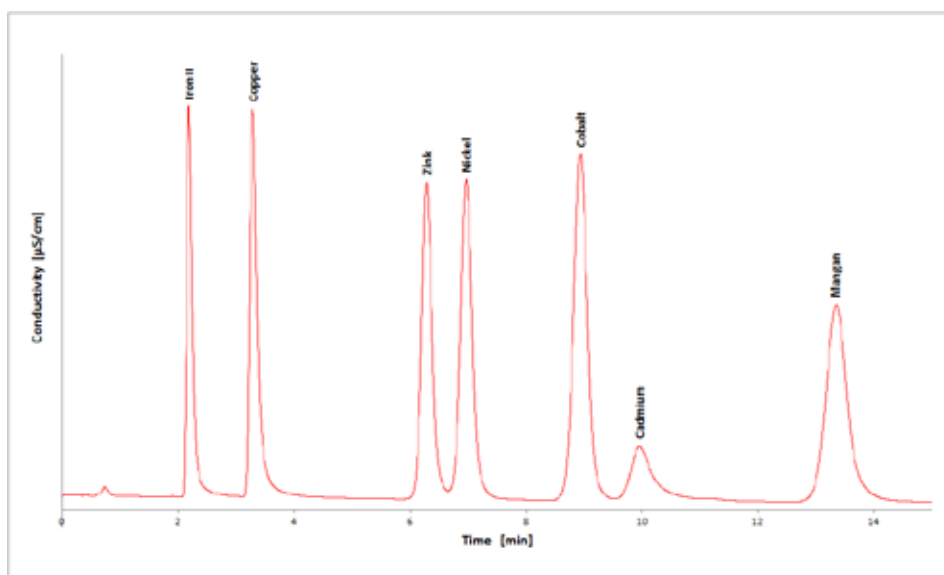




# IC SEPARATION COLUMNS: METAL IONS

## Cation Separation Column ION T01

The **ION T01** is a silica-based separation column for determination of transition metals.



### Applications

UV Detection (Post-Column Derivatization):

- $\text{Fe(II)}^{2+}$ ,  $\text{Cu}^{2+}$ ,  $\text{Zn}^{2+}$ ,  $\text{Ni}^{2+}$ ,  $\text{Co}^{2+}$ ,  $\text{Cd}^{2+}$ ,  $\text{Mn}^{2+}$

### Technical Specifications

<b>Substrate:</b>	Silica
<b>Particle Size:</b>	5 µm
<b>Column dimensions:</b>	4.6 x 125 mm
<b>Column material:</b>	Stainless Steel
<b>Max. Pressure:</b>	34 MPa
<b>pH Range:</b>	2 ... 8

## ORDER INFORMATION

### Cation Separation Column ION T01

Catalog No	Description	Dimensions
S005318	Cation Separation Column ION T01	4.6 x 125mm, 5 µm
S006660	Cation Guard Column GCC-2	4.0 x 3.0mm, 5 µm







# SYKAM PRODUCTS

## S 500 Series HPLC Systems



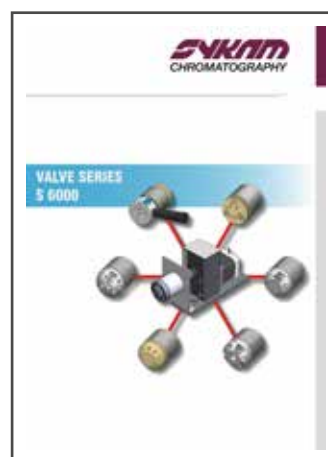
## S 600 Series HPLC Systems



## S 433 Amino Acid Analyzer



## S 6000 Valve Series



## Sykam OEM Solutions



## S 1525 Preparative Pump



## **Sykam GmbH**

Systeme & Komponenten analytischer Meßtechnik

Gewerbering 15  
86922 Eresing  
Germany

Tel.: +49 (8193) 93 82 - 0  
FAX: +49 (8193) 93 82 - 20  
EMail: [info@sykam.com](mailto:info@sykam.com)  
Web: <http://www.sykam.com>

