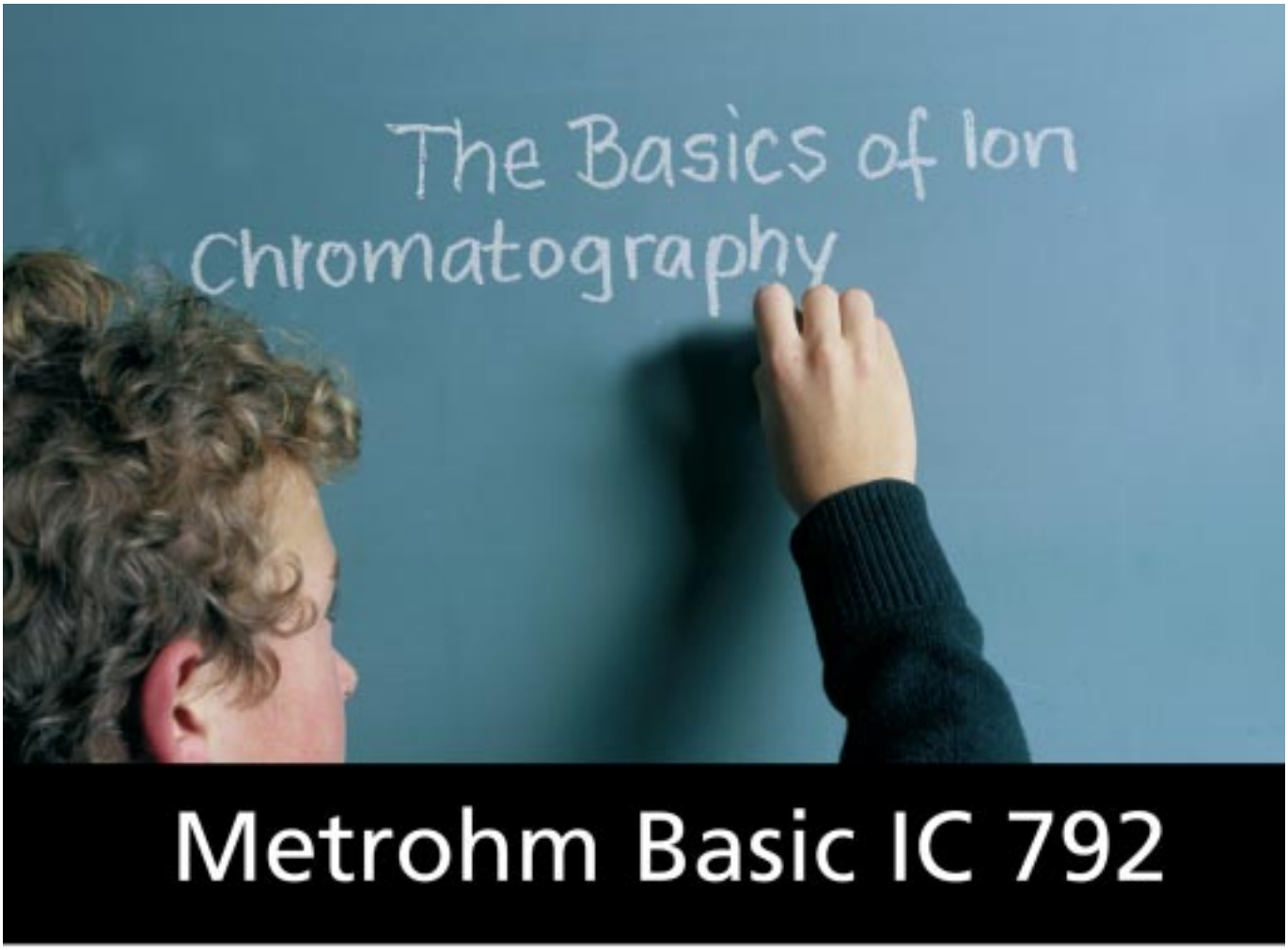
Metrohm
Ion analysis

792 Basic IC



Where and how can ion chromatography be taught and learned?
Up to now only complex or expensive solutions were possible.
Metrohm's answer is different: 792 Basic IC.

Explains the basics

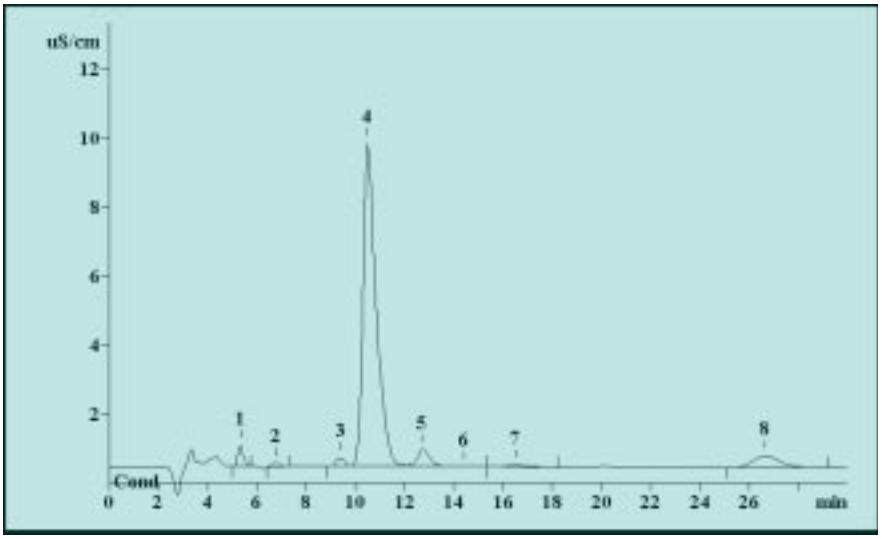
The 792 Basic IC is an instrument that students can use to familiarize themselves with the basics of ion chromatography in a very simple way. As ion chromatography belongs to the HPLC family, the basics of this technique are also acquired. The software program allows the operator to create various hardware systems and to operate them with different methods. It is possible to develop and save one's own methods for each experiment and each application.

Detailed description of 22 experiments

The training manual takes into account different levels of education. Learners concerning themselves with the subject of ion chromatography for the first time will find just as much useful and, above all, understandable information as students who have already gained some experience in the field of chromatography.

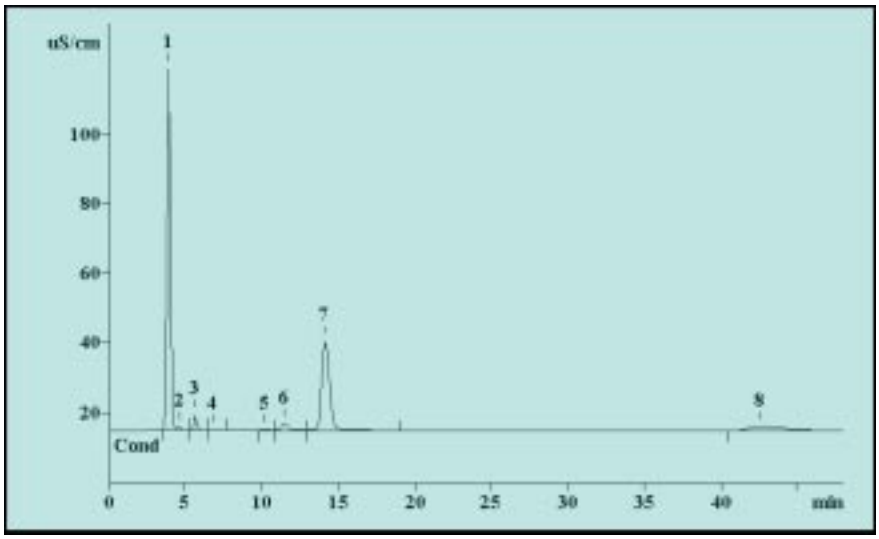
Deals with your applications

Of course, the 792 Basic IC is not just limited to the teaching and training sectors, but it also carries out valuable work in standard applications in the analytical laboratory. Irrespective of whether anions, cations or organic compounds are to be determined – the Basic IC supplies correct and precise results in a very short time. The detection limits are below 100 ppb (0.1 mg/kg).



Chromatogram of a low-calorie cola, diluted 1:10, obtained with the Metrosep Anion Dual 1 column. Peak no. 2 is the system peak. Contents determined: 1 chloride 6.0 mg/L, 3 nitrate 7.3 mg/L, 4 phosphate 663 mg/L, 5 sulfate 14.4 mg/L (peaks 6, 7 and 8 not evaluated).

Source: training manual of 792 Basic IC



Chromatogram of a toothpaste without citrate, diluted 1:20, obtained with the Metrosep Anion Dual 1 column. Peak no. 4 = system peak, peak no. 5 = monofluorophosphate. Contents determined: 1 fluoride 1304 mg/L, 2 formate 52 mg/L, 3 chloride 66 mg/L, 6 phosphate 260 mg/L, 7 sulfate 1346 mg/L, 8 saccharin 160 mg/L.

Source: training manual of 792 Basic IC

The 792 Basic IC is controlled by the PC

IC for everyone!

Metrohm aims to cover all areas of ion chromatography competently and at a very high level. This begins with simple systems for routine applications and the 790 Personal IC. It is continued by the 761 Compact IC, which offers lower detection limits and additional flexibility. The modular IC system – based on the two main components 819 Advanced IC Detector and 820 Advanced IC Separation Center – is the top system for the laboratory sector. The powerhouse for process control in industry and in the power plant sector is the 811 Online IC.

792 Basic IC

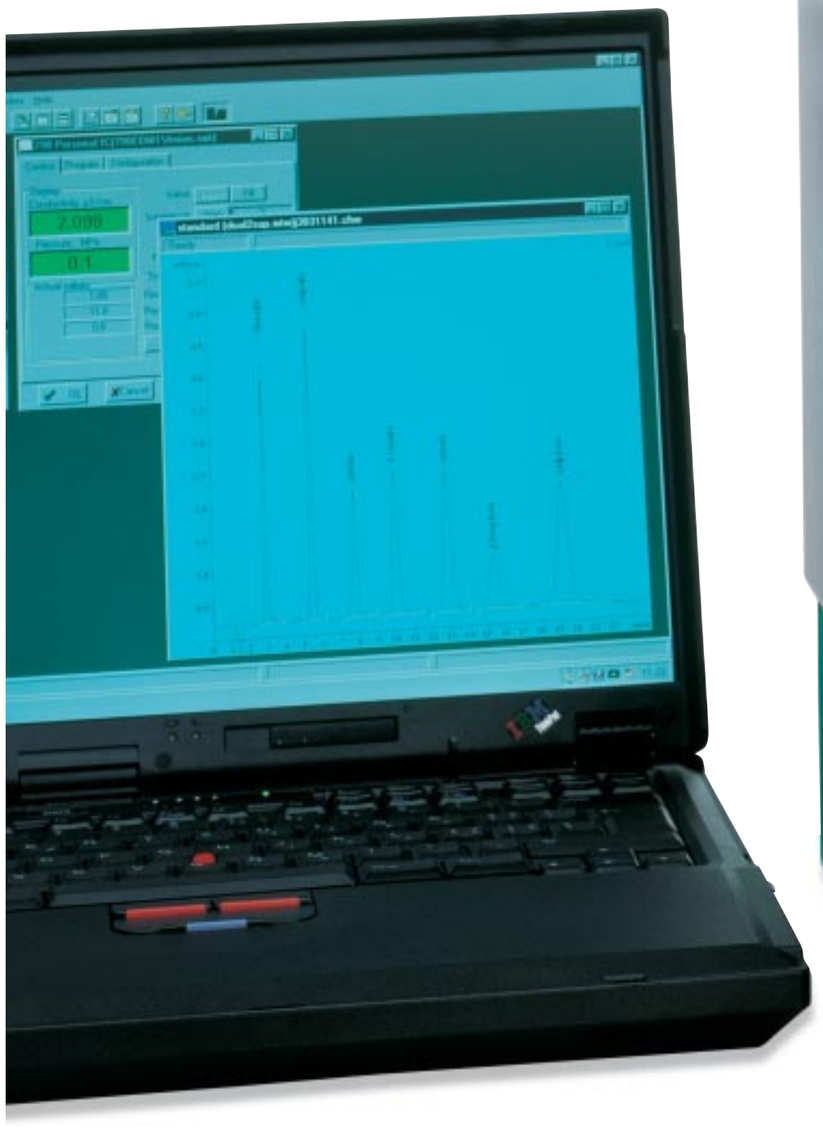
With the 792 Basic IC Metrohm offers two different things:

In the first place this unusually favorably-priced IC instrument enables schools, universities, advanced training institutes as well as in-house training laboratories to acquire one or more ion chromatographs and to equip the training facilities with the required workplaces.

Secondly Metrohm has published a training manual providing an easy-to-grasp introduction to the basics of ion chromatography in which the theory is explained both simply and at a more demanding level; it also describes 22 experiments that cover the whole world of ion chromatography.

Metrohm
Ion analysis

The latest ion chromatograph from the series of Metrohm IC compact instruments covers the fields of instruction and training in ion chromatography. The 792 Basic IC follows the vision that Metrohm has developed for ion chromatography: manufacturing IC systems that have a high performance, work reliably, are easy to use and nevertheless are still affordable. Some of the far-reaching possibilities of ion chromatography previously had to be left unused as the costs of the instruments were too high. Thanks to Metrohm it is possible today for everyone to utilize this potential. The 792 Basic IC is a fully fledged ion chromatograph incorporating the time-proven Metrohm components.



- Thermally insulated and electronically shielded housing
- High-performance conductivity detector, temperature-stabilized at 40 °C, temperature stability better than ±0.01 °C
- Low-pulsation double piston pump – no external gas supply is necessary
- Electric six-way injection valve
- Purge valve
- Built-in two-channel peristaltic pump

- Anion and cation analysis
  - Without chemical suppression for anions and cations
  - With chemical suppression for anions with the Metrohm Suppressor Module «MSM»
- Integral data acquisition and AD conversion
- Fully PC-controlled
- The included monograph serves as a practical training manual and contains:
  - The theoretical principles of ion chromatography, both at the beginner's and at an advanced level
  - 22 experiments, described in detail, open up the world of ion chromatography to the student

792 Basic IC

The 792 Basic IC stands out by its low acquisition and operating costs

Low operating costs

For all Metrohm instruments, including the new 792 Basic IC, the term «Cost of Ownership» has achieved great importance. This covers the operating costs associated with the instrument; with the Basic IC these are unusually low. It requires no expensive external gas supply, as the built-in double piston pump naturally provides an adequate performance. The IC pump also ensures a constant low-pulsation flow and therefore guarantees a steady baseline. The injection valve also works without needing nitrogen or helium. This saves costs. If the Metrohm Suppressor Module «MSM» is operated correctly, its lifetime is practically unlimited. Carbonate/hydrogen carbonate eluent, dilute sulfuric acid and water for regeneration and rinsing the suppressor – all the necessary solutions are cheap to prepare. Even with a high sample throughput the operating costs can be kept very low. That the software belongs to the instrument and does not need to be purchased separately is a matter of course.

Experiments covering the theory of ion chromatography

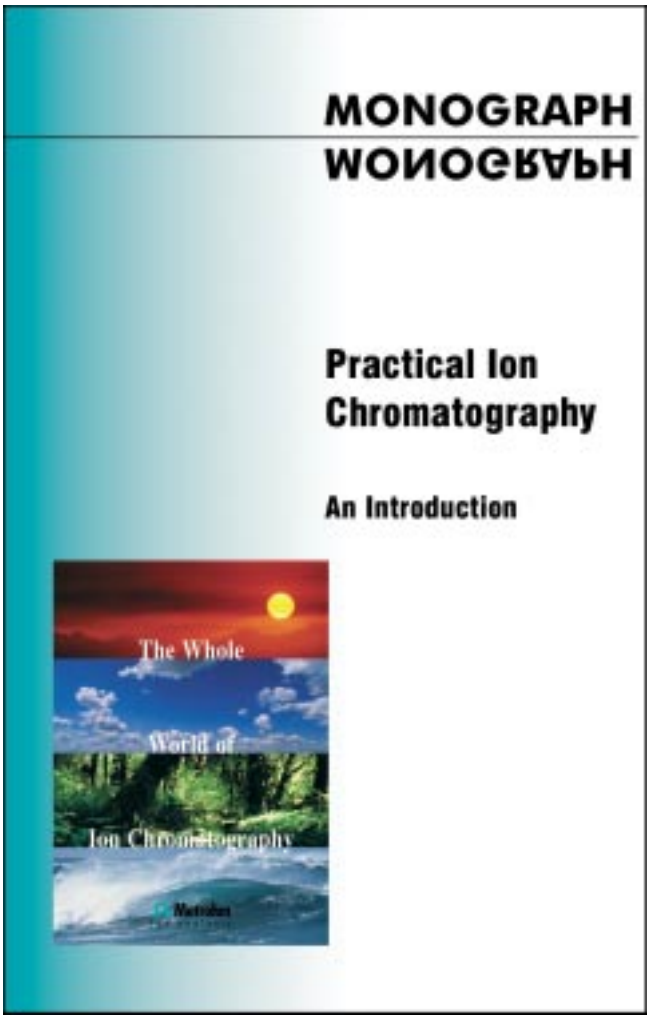
Experiment 1	Ion chromatography with and without chemical suppression
Experiment 2	Capacity of separating columns
Experiment 3	Selectivity of separating columns
Experiment 4	Calibration, detection and determination limits in ion chromatography
Experiment 4a	Determining anions with chemical suppression
Experiment 5	Altering the selectivity with the aid of crown ethers (18 Crown-6)
Experiment 6	Altering the selectivity by using complexing agents
Experiment 7	Preconcentration technique

Determination of anions

Experiment 8	Determining anions in drinking water
Experiment 9	Anions in ethanol and spirits (liquor)
Experiment 10	Anions in lettuce
Experiment 11	Phosphoric acid in cola drinks
Experiment 12	Organic acids in wine
Experiment 13	Determination of contaminants in borate – chloride and sulfate in borax
Experiment 14	Determination of anions in wastewater
Experiment 15	Fluoride in toothpaste
Experiment 16	Anions in brown and white sugar
Experiment 17	Contaminants in hydrogen peroxide

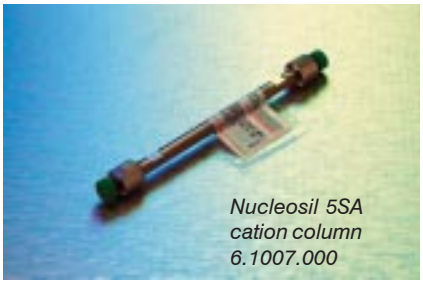
Determination of cations

Experiment 18	Alkali metals and alkaline earths in drinking water and mineral water
Experiment 19	Determination of transition metals
Experiment 20	Contaminants in silica gel – determination of calcium and magnesium ions
Experiment 21	Cosmetics and corrosion protection: determination of ethanolamine and alkali metals
Experiment 22	Alkali metals and alkaline earth metals in wine



The training manual gives access to both the theoretical aspects and applications of ion chromatography

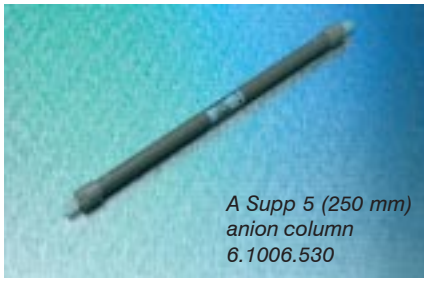
Metrosep columns used for the experiments described in the training manual


Nucleosil 5SA cation column 6.1007.000


C2 cation column 6.1010.210


Anion Dual 1 anion column 6.1006.020


Organic Acids exclusion column 6.1005.200


A Supp 5 (250 mm) anion column 6.1006.530

Ordering information

2.792.0020 Metrohm 792 Basic IC for the determination of anions with or without chemical suppression and determination of cations without chemical suppression. Especially suitable for training; includes extensive training manual.

Option

6.5324.000 Eluent Organizer for the convenient arrangement of the bottles for the eluent and for the regeneration solutions for the «MSM»; comprises three bottles plus additional accessories

6.5325.000 Basic IC Starter Kit, consisting of Metrosep Anion Dual 1 anion column (150 mm) with holder, also includes pulse dampener

Technical specifications

Compact ion chromatography system with PC control

- Built-in six-way injection valve
- Low-pulsation double-piston pump, flow rate 0.2...2.5 mL/min, maximum pressure 25 MPa (250 bar, 3625 psi)
- Thermally and electrically insulated column compartment
- Stability of the detector temperature better than ±0.01 °C, temperature 40°C, measuring range 0...1000 µS/cm
- Two-channel peristaltic pump, 0.5 mL/min (50 Hz) or 0.6 mL/min (60 Hz), with 6.1826.060 tubing
- Metrohm Suppressor Module «MSM» for the determination of anions using chemical suppression
- Built-in 22-bit AD converter
- Software for control and integration
- Dimensions

Width	255 mm
Height	385 mm
Depth	343 mm

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