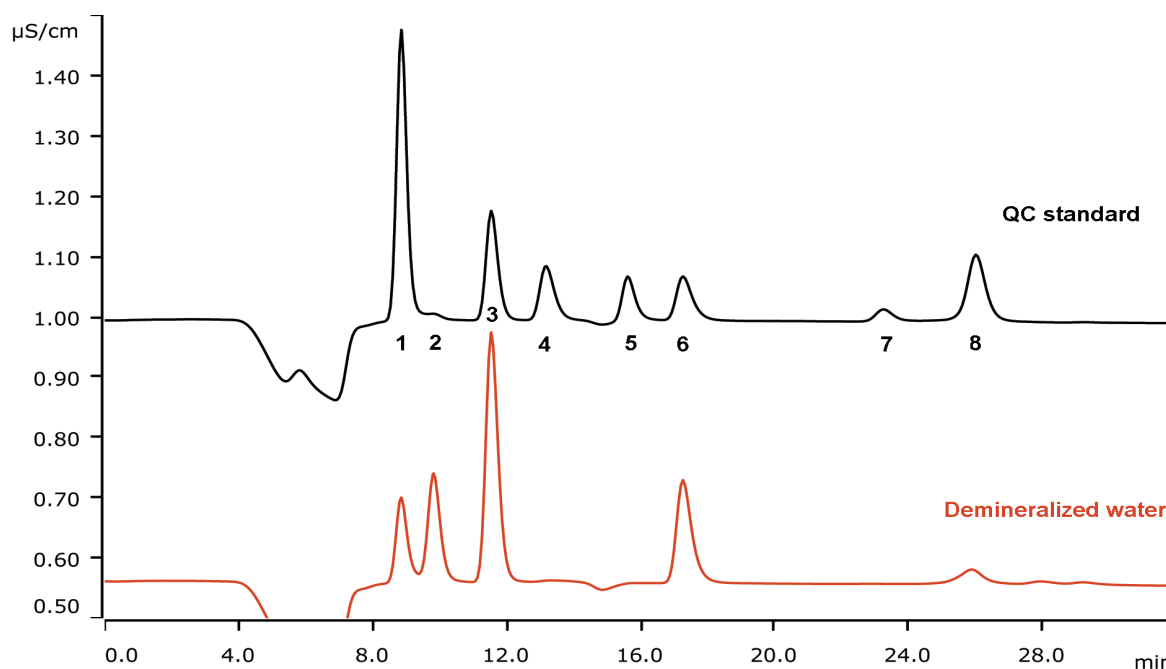


# Trace level monitoring in deionized water using Process IC



A combination of the 940 Professional IC Vario, the 942 Extension Module Vario LQH, and the 941 Eluent Preparation Module opens the field of process monitoring by IC. This anion version – the ProfIC Vario 12 Anion – is part of the Metrohm Process IC. The analysis is performed by intelligent Preconcentration with Matrix Elimination (MiPCT-ME). The use of ELGA PURELAB® Flex 6 grants a constantly high quality of ultrapure water supply even for long-term usage.

## Results

		QC [ $\mu\text{g/L}$ ]	Sample [ $\mu\text{g/L}$ ]			QC [ $\mu\text{g/L}$ ]	Sample [ $\mu\text{g/L}$ ]
1	Fluoride	1.00	0.29	5	Bromide	1.00	1.96
2	Acetate	1.00	n.q.	6	Nitrate	1.00	-
3	Chloride	1.00	1.96	7	Phosphate	1.00	-
4	Nitrite	1.00	-	8	Sulfate	1.00	0.19

## Sample

Deionized water

## Sample preparation

Inline Preconcentration and Inline Matrix Elimination

## Columns

Metrosep A Supp 5 - 250/2.0	6.1006.230
Metrosep A Supp 5 Guard/2.0	6.1006.600
Metrosep A PCC 2 HC/4.0	6.1006.340

## Solutions

Eluent concentrate	64 mmol/L sodium carbonate 20 mmol/L sodium hydrogen carbonate
Eluent	3.2 mmol/L sodium carbonate 1.0 mmol/L sodium hydrogen carbonate
Suppressor regenerant	100 mmol/L sulfuric acid
Rinsing solutions	STREAM

## Parameters

Flow rate	0.18 mL/min
Injection volume	2000 µL
P <sub>max</sub>	20 MPa
Recording time	32 min
Column temperature	30 °C



## Analysis

Conductivity detection after sequential suppression

## Instrumentation

Process IC	
940 Professional IC Vario ONE/SeS	2.940.1400
IC Conductivity Detector	2.850.9010
942 Extension Module Vario LQH	2.942.0070
2 x 800 Dosino	2.800.0010
941 Eluent Production Module	2.941.0010
846 Dosing Interface	2.846.0010
MSM-LC Rotor A	6.2844.000
IC equipment: MiPCT-ME	6.5330.160
IC equipment: Dosino regeneration	6.5330.190
ELGA PURELAB® Flex 6	

## Calibration MiPCT-ME

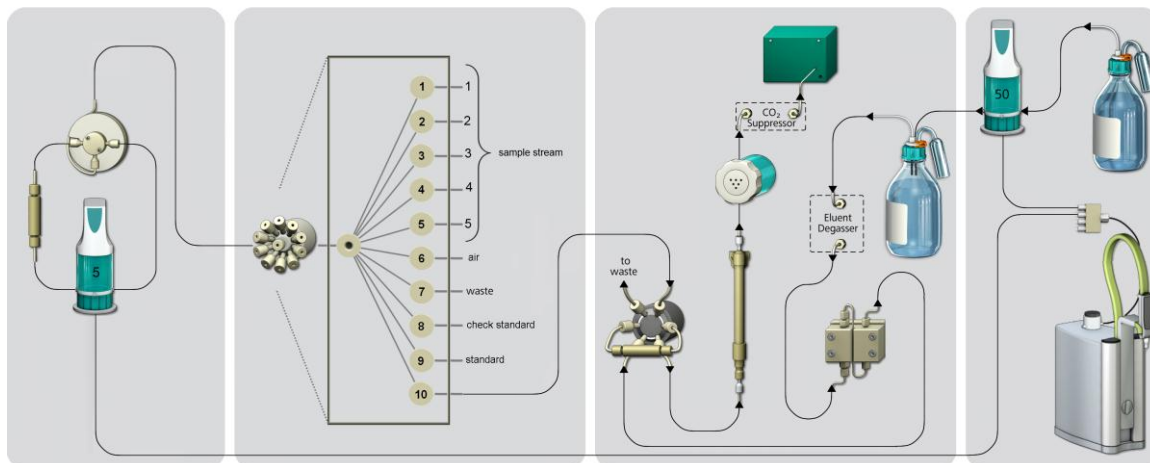
Calibration range	Factor of 80
Standard solution:	
All ions	40 µg/L
1. Level	0.5 µg/L = 25 µL
2. Level	1.0 µg/L = 50 µL
3. Level	5.0 µg/L = 250 µL
4. Level	10.0 µg/L = 500 µL
5. Level	40.0 µg/L = 2000 µL



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## Flow chart



This system setup monitors up to five sample streams. Each stream may be equipped with Inline Ultrafiltration to prevent clogging and to reduce sample pressure. One additional sampling port is for collecting grab samples. Two sampling ports are used for calibration standard and check standard solutions, respectively. The 2-mm-column reduces eluent consumption to  $\approx 10$  L/month. Ultrapure water supply by ELGA PURELAB Flex 6 assures perfect water quality at any time.

Max. measuring range	0.5...3200 $\mu\text{g/L}$
Repeatability	$\pm 2\%$
Detection limit	$< 0.05 \mu\text{g/L}$
Circuit time	40 min