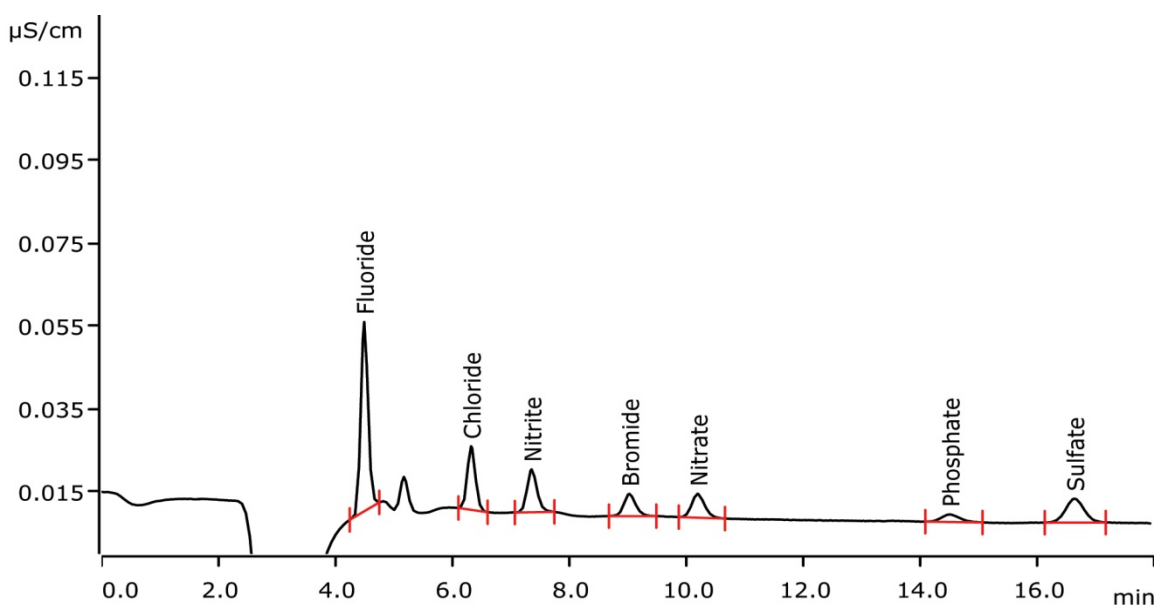# Variable Inline Preconcentration including Matrix Elimination for trace anion analysis (MiPCT-ME)

Metrohm Inline Preconcentration Technique with Matrix Elimination (MiPCT-ME) is a powerful tool that combines preconcentration, matrix elimination, and multilevel calibration. The latter only requires a single multi-ion standard solution. The 800 Dosino takes over all liquid handling tasks. The shown system setup allows sample analysis from 0.1 µg/L up to 1.0 mg/L.

Results

	Conc. [ng/L]		Conc. [ng/L]
Fluoride	100	Nitrate	100
Chloride	100	Phosphate	100
Nitrite	100	Sulfate	100
Bromide	100		

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Sample

Standard solution

Sample preparation

Inline Preconcentration with Matrix Elimination (MiPCT-ME)

Columns

Metrosep A Supp 5 - 150/4.0	6.1006.520
Metrosep A Supp 4/5 Guard/4.0	6.1006.500
Metrosep A PCC 1 HC/4.0	6.1006.310

Solutions

Eluent (inline eluent preparation)	3.2 mmol/L sodium carbonate 1.0 mmol/L sodium hydrogen carbonate
Suppressor regenerant	100 mmol/L sulfuric acid
Rinsing solution	Ultrapure water

Analysis

Conductivity after sequential suppression

Parameters

Flow rate	0.7 mL/min
Injection volume	40…4000 µL
P_{max}	15 MPa
Recording time	18 min
Column temperature	35 °C

## Instrumentation

850 Professional IC Anion – MCS	2.850.2030
IC Conductivity Detector	2.850.9010
858 Professional Sample Processor	2.858.0010
2 x 800 Dosino (liquid handling)	2.800.0010
849 Level Control for Inline Eluent Preparation	2.849.1030

Calibration MiPCT-ME

Calibration range	Factor of 100
Standard solution:	
All anions	10 µg/L
1. Level	40 µL = 0.1 µg/L
2. Level	80 µL = 0.2 µg/L
3. Level	200 µL = 0.5 µg/L
4. Level	400 µL = 1.0 µg/L
5. Level	800 µL = 2.0 µg/L
6. Level	2000 µL = 5.0 µg/L
7. Level	4000 µL = 10 µg/L

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Flow chart
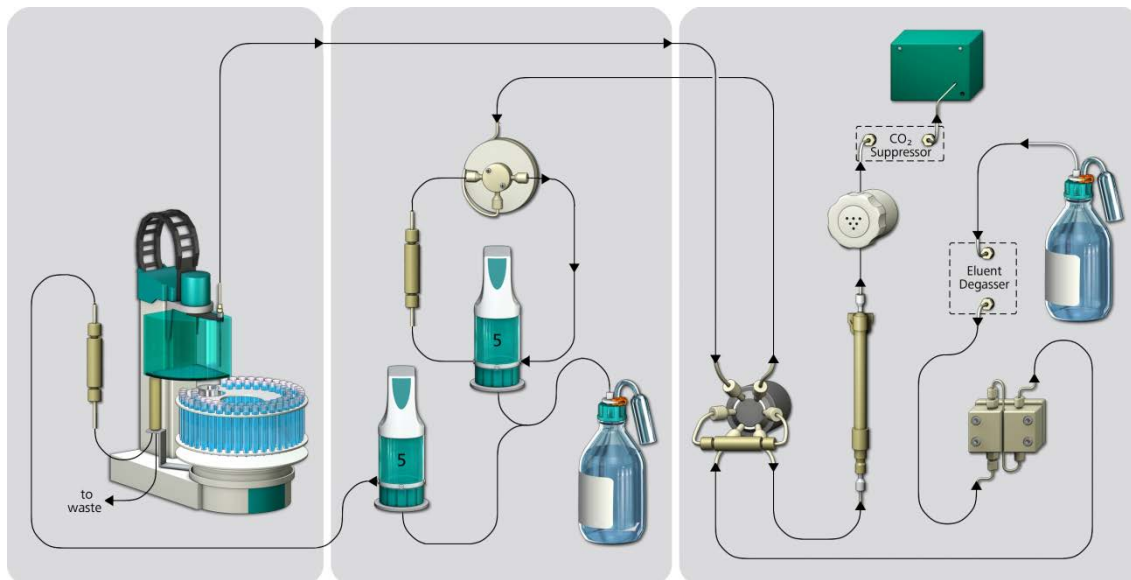
Procedure: The Dosino aspirates the required sample volume into the transfer tubing. Then the sample volume is loaded on to the preconcentration column, which subsequently is rinsed with excess ultrapure water.

Due to the fact that the sample volume can be widely adjusted, the calibration from 0.1…10 µg/L converts into a calibrated measuring range from 0.1 up to 1000 µg/L.

Injecting 40 µL of a 1000 µg/L sample equals injecting 4000 µL of a 10 µg/L solution (the highest calibration level).

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