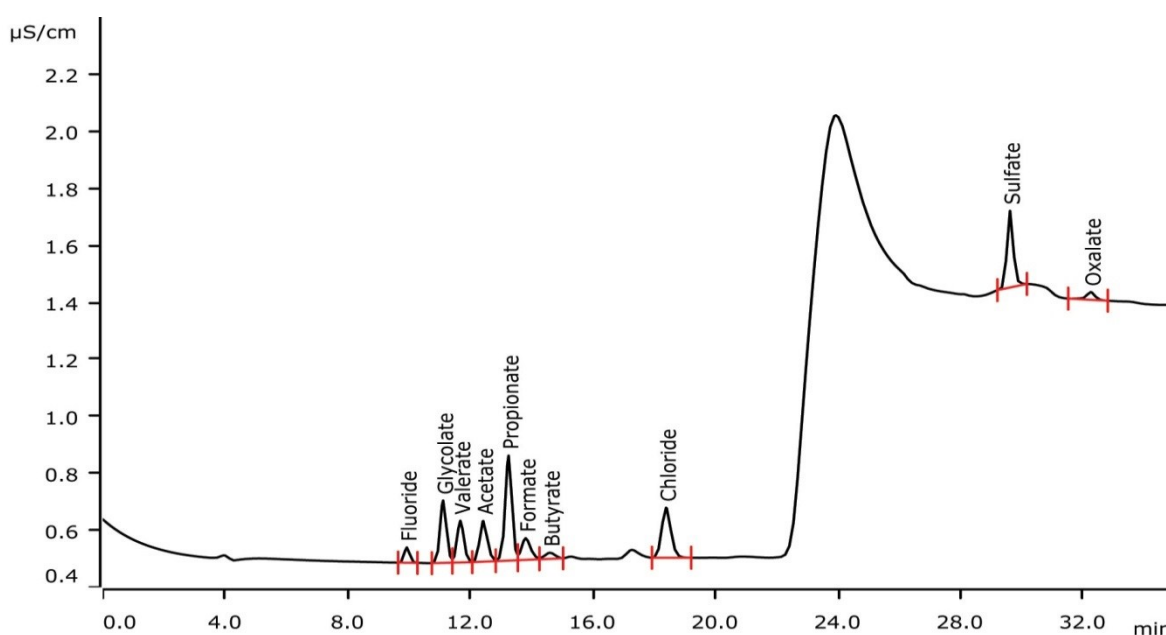


# Organic acids besides standard anions in monoethylene glycol (MEG) applying a Dose-in Gradient



The separation of short-chain organic acids from fluoride and chloride requires diluted eluents. These weak eluents, however, induce long retention times for divalent anions. Adding a stronger eluent later in the run by use of a Dose-in Gradient makes these anions elute sooner. An advantage of the Dose-in Gradient is that it does not require multiple high-pressure pumps or proportioning valves.

## Results

	Concentration [mg/L]		Concentration [mg/L]
Fluoride	n.q.	Formate	27.9
Glycolate	n.q.	Butyrate	n.q.
Valerate	n.q.	Chloride	28.5
Acetate	43.2	Sulfate	34.2
Propionate	126.4	Oxalate	< 0.05*

\* Below calibration range

## Sample

Monoethylene glycol (MEG)

## Sample preparation

Dilution 1 : 50

## Columns

Metrosep A Supp 7 - 250/4.0	6.1006.630
Metrosep A Supp 4/5 Guard/4.0	6.1006.500

## Solutions

Eluent A	0.9 mmol/L sodium carbonate
Eluent B	36.0 mmol/L sodium carbonate
Suppressor regenerant	100 mmol/L sulfuric acid
Rinsing solution	STREAM

## Parameters

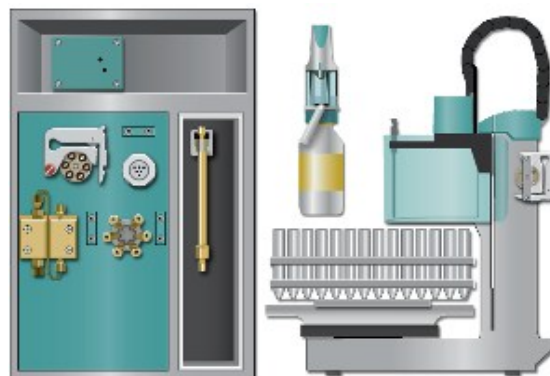
Flow rate	0.7 mL/min
Injection volume	10 µL
P <sub>max</sub>	15 MPa
Recording time	35 min
Column temperature	45 °C

## Analysis

Conductivity after Dose-in Gradient and subsequent sequential suppression

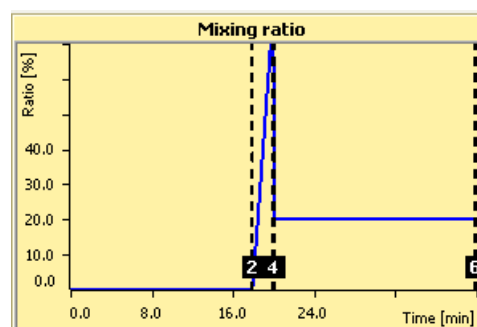
## Instrumentation

940 Professional IC Vario ONE/SeS/PP	2.940.1500
IC Conductivity Detector	2.850.9010
858 Professional Sample Processor	2.858.0020
IC equipment: Dose-in Gradient	6.5330.150
800 Dosino	2.800.0010
Dosing Unit 10 mL	6.3032.210
MSM Rotor A	6.2832.000
Adapter sleeve for Suppressor Vario	6.2842.020



## Gradient profile

Time	Ratio B [%]	Curve
Start	0.0	
18.0	0.0	Linear
20.0	80.0	Linear
20.1	20.0	Linear
40.0	20.0	Linear
40.1	0.0	Linear



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### Flow chart Dose-in Gradient

Function: the IC pump acts as an isocratic pump and delivers a constant flow of 0.7 mL/min. Depending on the gradient profile, the dosino delivers a part of the flow, while the rest is still taken from Eluent A. Without running the Dosino the system is a straight forward isocratic IC.

