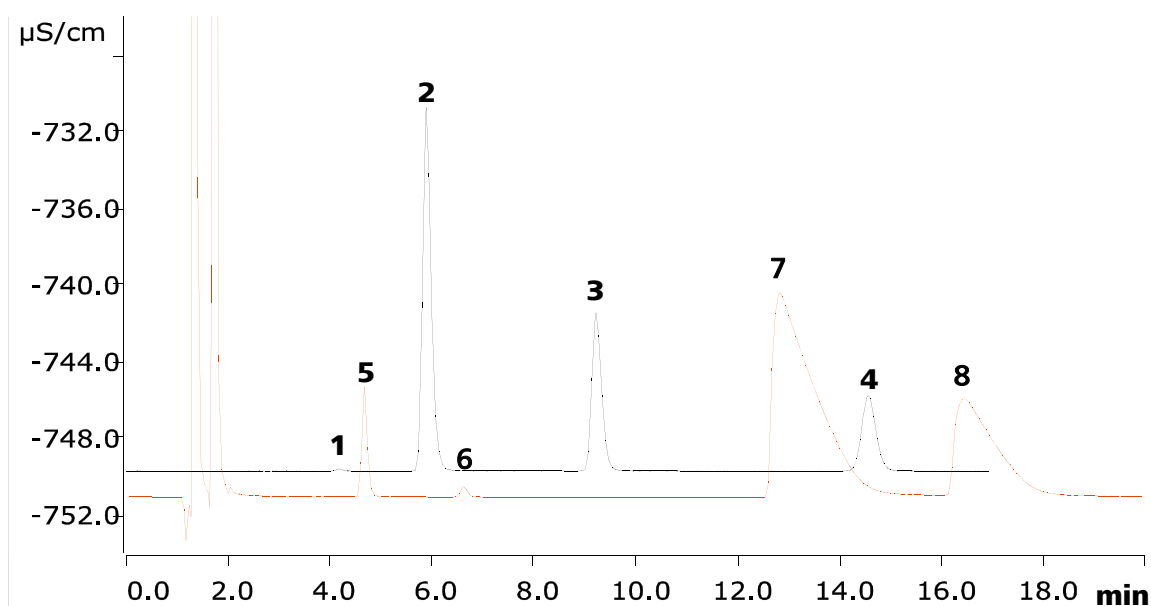


Comprehensive water analysis with TitrIC Vario pro III



TitrIC Vario pro III is the perfect combination of titration and ion chromatography for the fully automated analysis of all important parameters. This includes pH, conductivity, hardness, anions, cations as well as the calculation of the ion balance: comprehensive water analysis out of one hand.

Results

IC / Temperature		Titration / calculated		
1	Fluoride	0.05 mg/L	Sum anions (IC)	0.55 mEq/L
2	Chloride	10.02 mg/L	Sum cations (IC)	6.65 mEq/L
3	Nitrate	9.52 mg/L	Conductivity	523.2 µS/cm
4	Sulfate	5.40 mg/L	pH value	7.7
5	Sodium	5.90 mg/L	m value	6.1 mmol/L
6	Potassium	1.48 mg/L	p value	0.0 mmol/L
7	Calcium	92.84 mg/L	Total hardness	3.2 mmol/L
8	Magnesium	20.92 mg/L	Sum anions (Titr)	6.10 mEq/L
	Temperature	27.5 °C	Ion balance	0.00 mEq/L

Method description

Sample

Drinking water

Sample preparation

None

Columns

Metrosep A Supp 5 - 150/4.0	6.1006.520
Metrosep A Supp 4/5 Guard/4.0	6.1006.500
Metrosep C 4 - 150/4.0	6.1050.420
Metrosep C 4 Guard/4.0	6.1050.500

Solutions

Eluent (anions)	3.6 mmol/L sodium carbonate 1.0 mmol/L sodium hydrogen carbonate
Regenerant	100 mmol/L sulfuric acid
Rinsing solution	STREAM
Eluent (cations)	1.7 mmol/L nitric acid 0.7 mmol/L dipicolinic acid
Titration solution	0.1 mol/L hydrochloric acid

Analyses

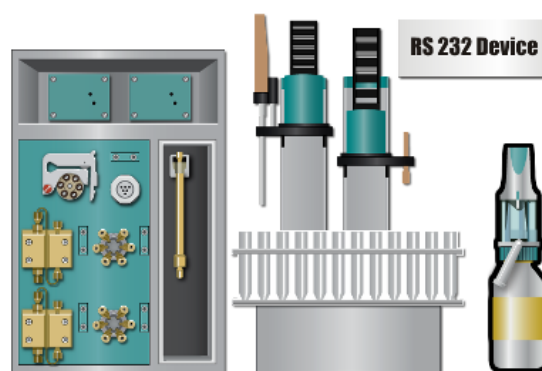
Suppressed conductivity (IC, anions)
Non-suppressed conductivity (IC, cations)
pH value
Conductivity
Potentiometric titration (m value, p value, temperature)

Parameters

IC, anion:	
Flow rate	0.7 mL/min
Injection volume	20 µL
P _{max}	15.0 MPa
Recording time	17 min
Column temperature	30 °C

IC, cation:	
Flow rate	0.9 mL/min
Injection volume	10 µL
P _{max}	25.0 MPa
Recording time	20 min
Column temperature	30 °C

Titration:	
Conductivity	Sensor in flow-through cell
pH value	iAquatrode plus
Titration mode	SET



Instrumentation IC

940 Professional IC Vario TWO SeS/PP	2.940.2500
815 Robotic UBS Sampler XL (2T/2P)	2.815.0110
2 × 786 Swing Head (with robotic arms)	2.786.0040
800 Dosino	2.800.0010

Instrumentation Titration

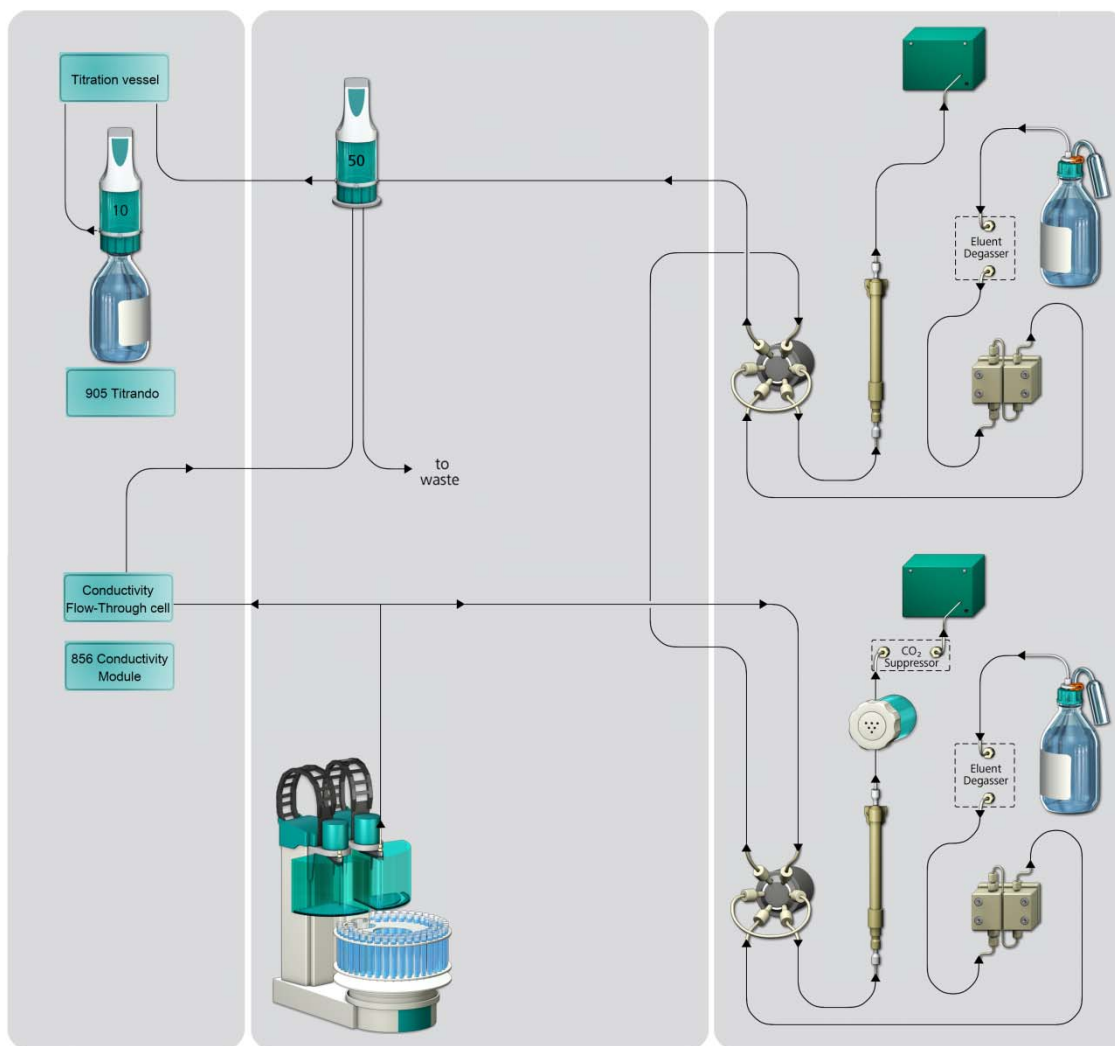
905 Titrando	2.905.0010
856 Conductivity Module	2.856.0010
800 Dosino	2.800.0010
802 Stirrer	2.802.0020

www.metrohm.com

 **Metrohm**

Method description

Flow chart



The liquid-handling Dosino fills the loops of both ion chromatographs and/or transfers the sample to the titration vessel. In the latter case, the sample is aspirated through the flow-through cell for conductivity measurement. MagIC Net takes over all final calculations and reporting.