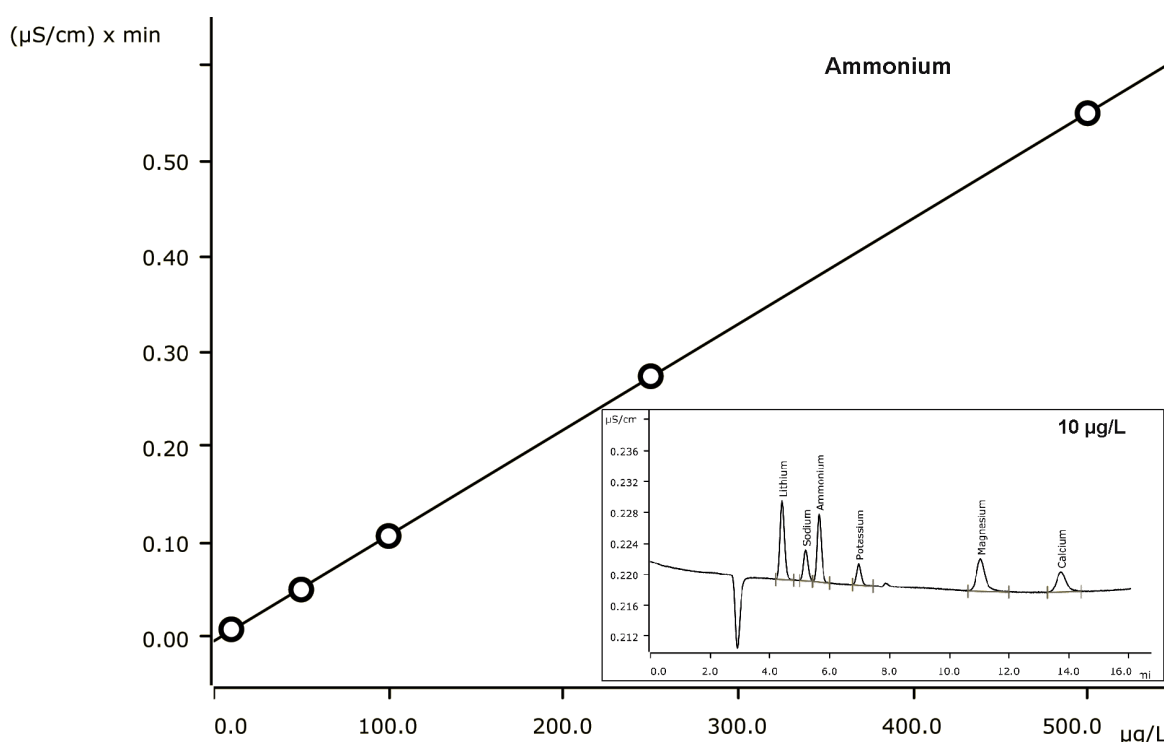


Ammonium – sequential suppression with linear calibration



Ammonium determination with suppressed cation chromatography often suffers from non-linear calibrations. This is due to the conversion to ammonium hydroxide. Applying Metrohm sequential cation suppression yields ammonium hydrogen carbonate. Under these conditions, ammonium and the other standard cations show linear calibration curves (R better than 0.997).

Results

Cation 10 - 500 $\mu\text{g/L}$	Corr. Coeff.	RDS [%]	Cation 10 - 500 $\mu\text{g/L}$	Corr. Coeff.	RDS [%]
Lithium	0.9999	0.44	Potassium	0.9998	2.77
Sodium	0.9999	1.75	Magnesium	0.9999	2.15
Ammonium	0.9999	0.62	Calcium	0.9997	3.48

Sample

Standard solution

Sample preparation

Intelligent Partial Loop Injection Technique

Columns

Metrosep C Supp 1 - 250/4.0	6.1052.430
Metrosep C Supp 1 Guard/4.0	6.1052.500

Solutions

Eluent	5.0 mmol/L nitric acid 50 µg/L rubidium
Suppressor regenerant	70 mmol/L sodium carbonate 70 mmol/L sodium hydrogen carbonate
Rinsing solution	STREAM

Analysis

Conductivity detection after sequential suppression

Instrumentation

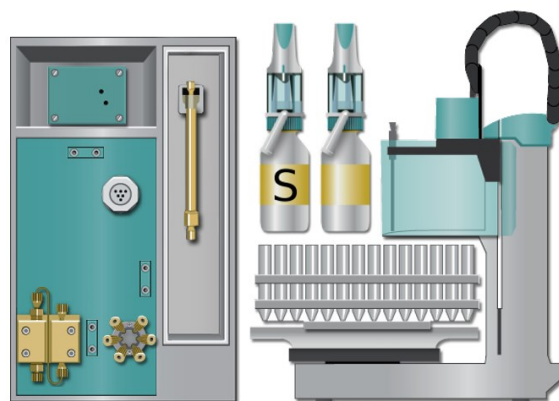
930 Compact IC Flex Oven/SeS/Deg	2.930.2460
IC Conductivity Detector	2.850.9010
858 Professional Sample Processor	2.858.0010
2 x 800 Dosino	2.800.0010
MSM-HC Rotor C	6.2842.200
IC equipment: MiPT	6.5330.180
IC equipment: Dosino regeneration	6.5330.190

Parameters

Flow rate	1.0 mL/min
Injection volume (MiPT)	4...200 µL
P _{max}	15 MPa
Recording time	16 min
Column temperature	40 °C

Calibration MiPT

Calibration range	Factor of 50
Standard solution:	
All cations	500 µg/L
1. Level	4 µL = 10 µg/L
2. Level	20 µL = 50 µg/L
3. Level	40 µL = 100 µg/L
4. Level	100 µL = 250 µg/L
5. Level	200 µL = 500 µg/L



www.metrohm.com

 **Metrohm**