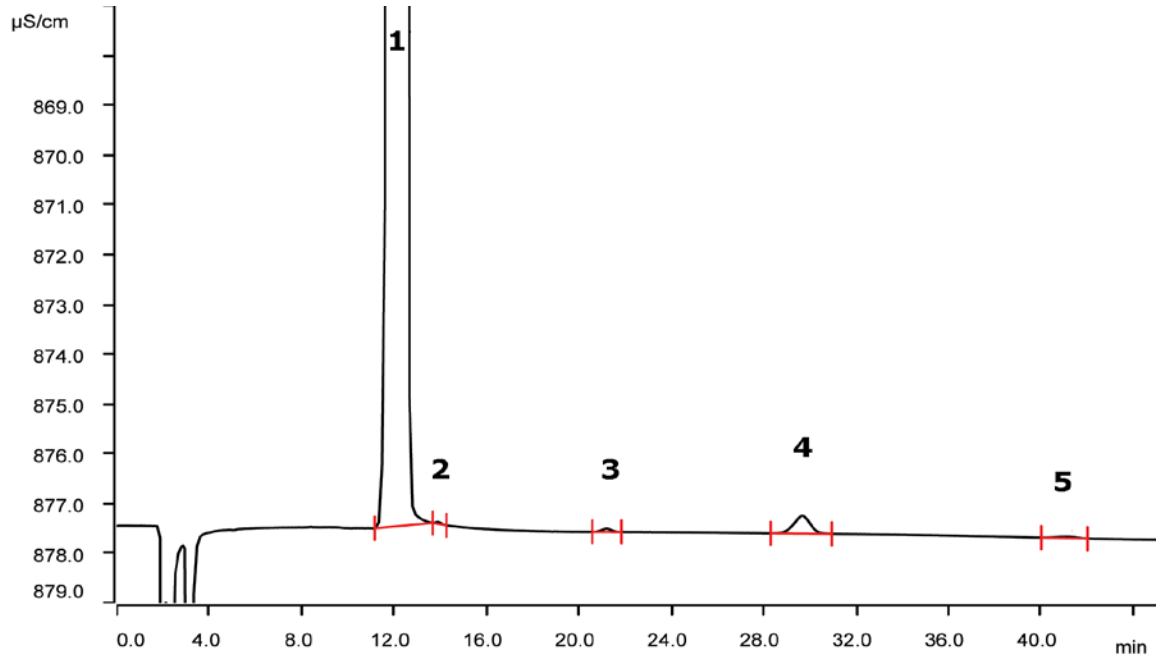
IC Application Note C–173

Cations in snow collected at a roadside



Cation content in snow depends strongly on the sampling location. Samples from roadside locations are expected to have high sodium content due to road deicing. This application shows the analysis of a snow sample from a roadside. The separation is performed on a microbore Metrosep C 6 - 250/2.0 column applying direct conductivity detection. The 250 mm column is selected due to the large concentration difference between sodium and ammonium. These conditions allow baseline separation between these two cations.

Results

	Cation	Conentration [mg/L]
1	Sodium	5029
2	Ammonium	< 1.0
3	Potassium	5.5
4	Calcium	32.9
5	Magnesium	1.8

Metrohm

Sample

Snow sample

Sample preparation

Dilution 1:25 with ultrapure water, Inline Ultrafiltration

Columns

Metrosep C 6 - 250/2.0	6.01051.230
Metrosep C 6 Guard/2.0	6.01051.600

Solutions

Eluent	1.7 mmol/L nitric acid 1.7 mmol/L dipicolinic acid

Analysis

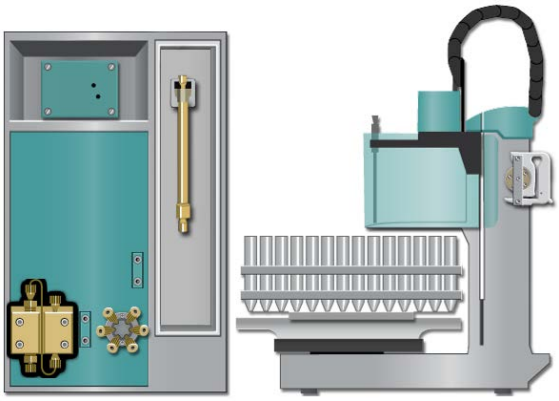
Direct conductivity detection

Instrumentation

930 Compact IC Flex Oven/Deg	2.930.2160
IC Conductivity Detector	2.850.9010
858 Professional Sample Processor	2.858.0020

Parameters

Flow rate	0.25 mL/min
Injection volume	5 µL
P_{max}	20 MPa
Recording time	45 min
Column temperature	30 °C



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