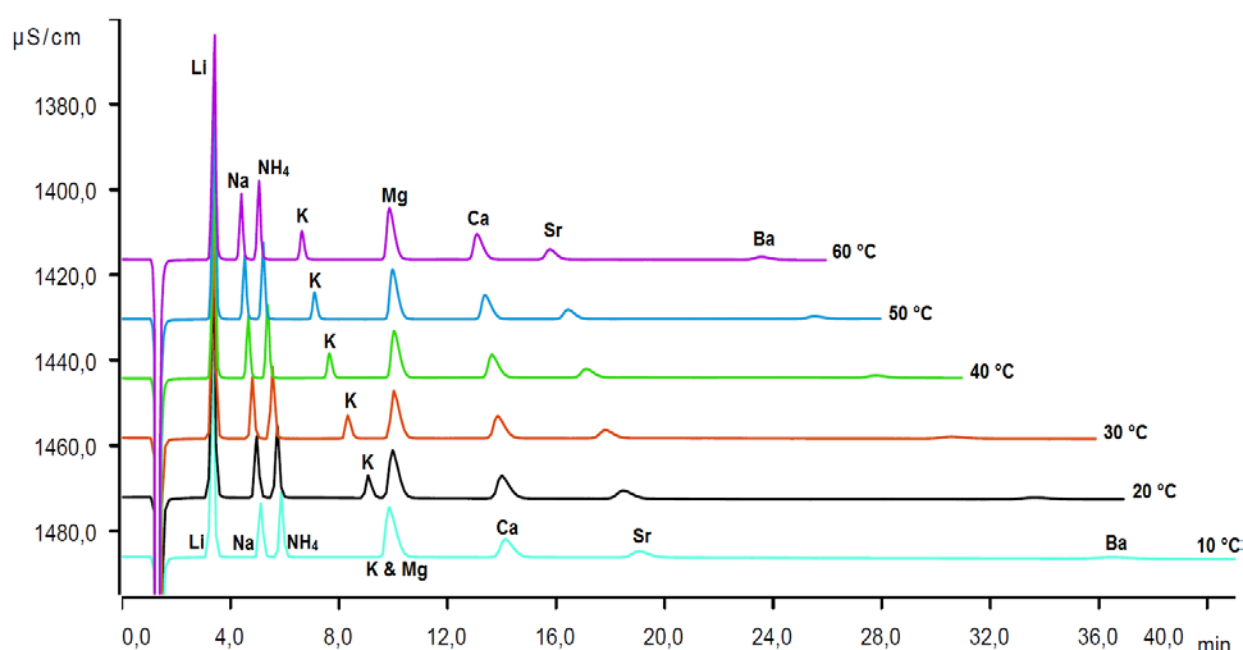


Temperature dependence of the separation of standard cations on the Metrosep C 6 - 150/4.0 cation column



Column temperature influences the separation time of cations on the Metrosep C 6 - 150/4.0 high-capacity column. Increasing temperature only slightly reduces the retention time of lithium, sodium, ammonium, magnesium, and calcium. By contrast, increasing temperature significantly reduces retention times for potassium, strontium, and barium. This dependence allows to optimize ammonium, potassium, and magnesium separation by reducing analysis time for strontium and barium.

Results

Cations (10 mg/L)

Lithium	Potassium	Strontium
Sodium	Magnesium	Barium
Ammonium	Calcium	

Sample

Standard solution

Sample preparation

None

Columns

Metrosep C 6 - 150/4.0	6.1051.420
Metrosep C 4 Guard/4.0	6.1050.500

Solutions

Eluent	4.5 mmol/L nitric acid
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Analysis

Direct conductivity detection

Instrumentation

940 Professional IC Vario ONE	2.940.1100
IC Conductivity Detector	2.850.9010
858 Professional Sample Processor	2.858.0020

Parameters

Flow rate	0.9 mL/min
Injection volume	20 μ L
P _{max}	20 MPa
Recording time	41 min
Column temperature	10...60 °C

