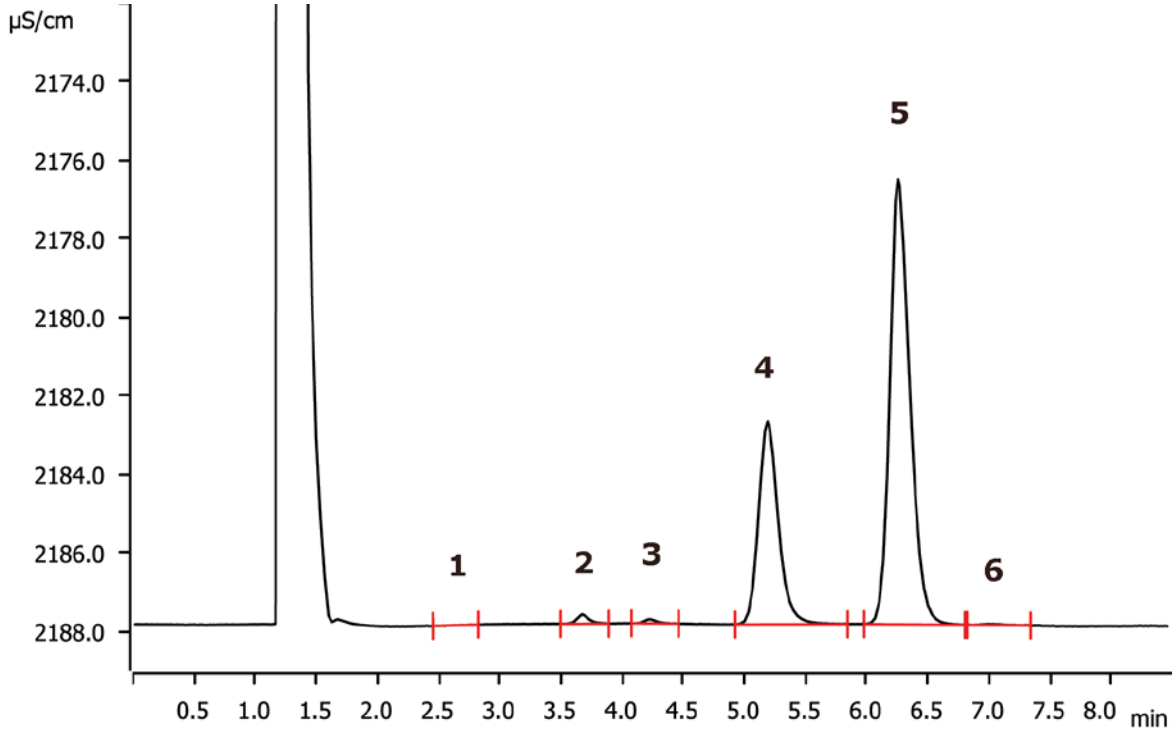
IC Application Note C–169

Determination of cations in tobacco additives



Tobacco additives may contain cations like ammonium (see AN-C-168) as well as other cations as counter ions of organic acids. These additives include components to retain moisture and flavor of the tobacco. Ammonium is added to increase the appeal of smoking, and is therefore considered to increase the addictive potential. The determination of cations in tobacco additives is performed by ion chromatographic separation followed by non-suppressed conductivity detection.

Results

Cation		Concentration [mg/g]	Cation		Concentration [mg/g]
1	Lithium	n.q.	4	Magnesium	32.5
2	Sodium	0.67	5	Potassium	249.3
3	Ammonium	0.42	6	Calcium	n.q.

Metrohm

Sample

Tobacco additive

Sample preparation

0.1 g additive dissolved in 100 mL of eluent and subsequent 1:20 dilution with eluent.

Columns

Metrosep C 6 - 150/4.0	6.1051.420
Metrosep RP 2 Guard/3.5	6.1011.030

Solutions

Eluent	6.25 mmol/L nitric acid

Analysis

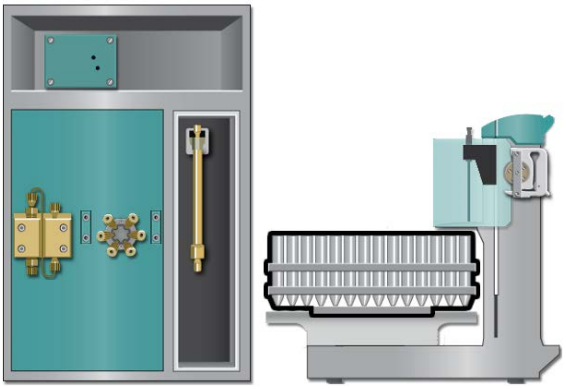
Direct conductivity detection

Instrumentation

940 Professional IC Vario ONE	2.940.1100
IC Conductivity Detector	2.850.9010
919 IC Autosampler plus	2.919.0020

Parameters

Flow rate	0.9 mL/min
Injection volume	5 µL
P_{max}	25 MPa
Recording time	8.5 min
Column temperature	32 °C



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