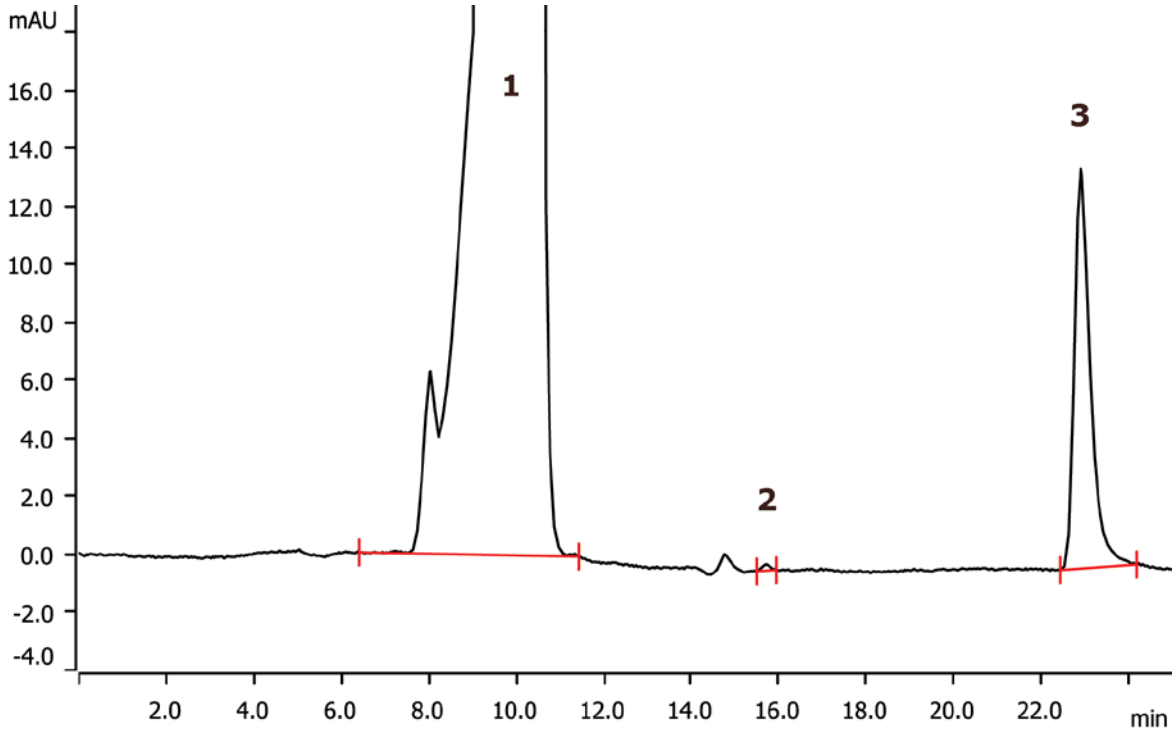
IC Application Note U–74

Determination of nitrite and nitrate in tobacco by ion chromatography with UV/VIS detection



Nitrite in tobacco facilitates the appearance of tobacco-specific nitrosamines. Most of these nitrosamines are carcinogenic. Therefore, the determination of nitrite in tobacco is required. This application describes the determination of nitrite and nitrate in acetic acid extracts of tobacco. The ion chromatographic separation is followed by UV/VIS detection after sequential suppression.

Results

	Anions	Concentration [mg/kg]	RSD [%, n = 3]
1	Acetate	-	-
2	Nitrite	0.23	8.9
3	Nitrate	337	1.0

Metrohm

Sample

Tobacco extract (5% acetic acid)

Sample preparation

Dilution 1:10 in ultrapure water.

Columns

Metrosep A Supp 7 - 250/4.0	6.1006.630
Metrosep A Supp 4/5 - Guard/4.0	6.1006.500

Solutions

Eluent	3.6 mmol/L sodium carbonate
Regenerant	100 mmol/L sulfuric acid
Rinsing	STREAM

Analysis

UV/VIS detection after sequential supression

Parameters

Flow rate	0.7 mL/min
Injection volume	20 µL
P_{max}	15 MPa
Recording time	25 min
Column temperature	45 °C
Wavelength	220 nm

Instrumentation

940 Professional IC Vario ONE/SeS/PP	2.940.1500
944 Professional UV/VIS Detector Vario	2.944.0010
858 Professional Sample Processor	2.858.0020
MSM Rotor A	6.2832.000
Adapter sleve for Suppressor Vario	6.2842.020