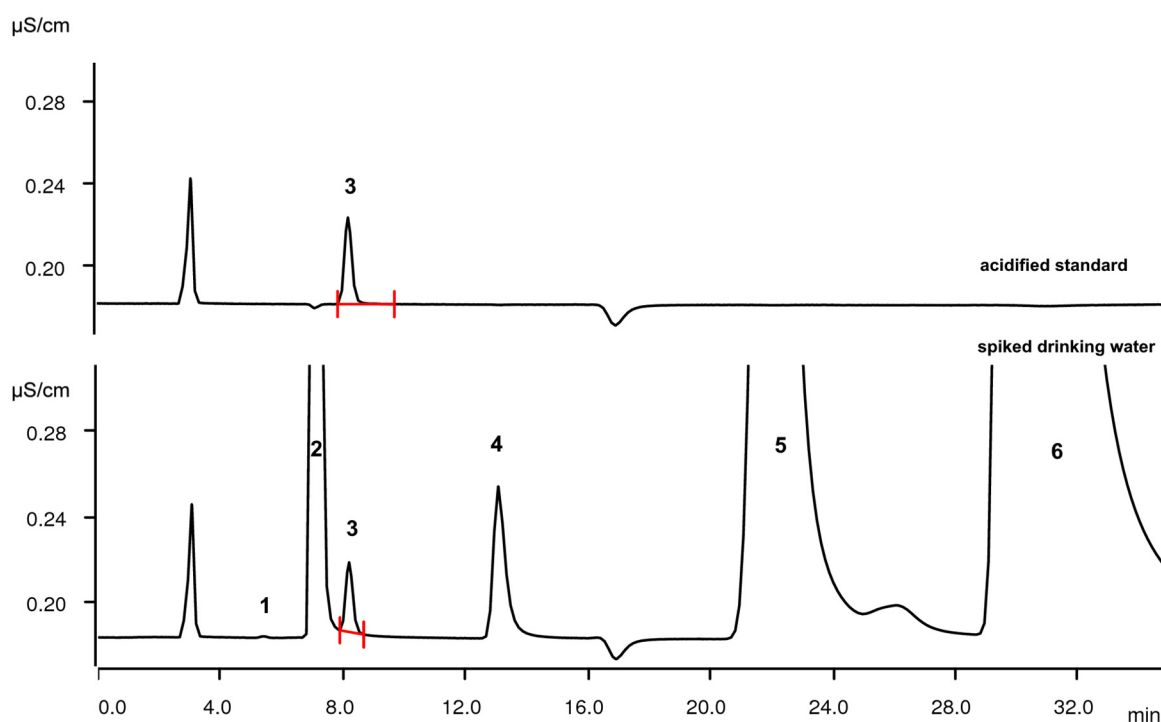


# Metrosep C Supp 2 - 250/4.0: Ammonium in acidic absorption solution – proof of concept



Acidic solutions used as scrubber solutions for ammonium typically have a pH of 2 or lower. This pH value is too low for silica based IC columns typically applied in direct conductivity detection of cations. The Metrosep C Supp 2 - 250/4.0 is polymer based and allows injecting low pH samples. An acidified drinking water sample spiked with ammonium is analyzed. The results indicate that such acidic solutions can be analyzed with conductivity detection after sequential cation suppression.

## Results

Sample	0.05 mol/L sulfuric acid spiked		Drinking water spiked		Drinking water spiked	
	Conc. [mg/L]	Recovery [%, N = 2]	Conc. [mg/L]	Recovery [%, N = 2]	Conc. [mg/L]	Recovery [%, N = 2]
3 Ammonium	0.2	100	0.15	96.7	0.4	97.5

1 lithium, 2 sodium, 4 potassium, 5 magnesium, 6 calcium are not quantified. The peak between magnesium and calcium might be zinc. Negative peak at 17 min corresponds to the rubidium in the eluent.

## Sample

Drinking water acidified to pH 2.

## Sample preparation

Direct injection.

## Columns

Metrosep C Supp 2 - 250/4.0	6.01053.430
Metrosep C Supp 2 Guard/4.0	6.01053.500

## Solutions

Eluent	5.0 mmol/L nitric acid 50 µg/L rubidium
<u>Eluent concentrate</u>	100 mmol/L nitric acid 1 mg/L rubidium
<u>Suppressor regenerant</u>	70 mmol/L sodium carbonate 70 mmol/L sodium hydrogen carbonate
Rinsing solution	STREAM

## Parameters

Flow rate	1.0 mL/min
Injection volume	10 µL
P <sub>max</sub>	25 MPa
Recording time	34 min
Column temperature	40 °C

## Analysis

Conductivity detection after sequential suppression

## Instrumentation

930 Compact IC Flex Oven/SeS/PP/Deg	2.930.2560
IC Conductivity Detector	2.850.9010
858 Professional Sample Processor	2.858.0020
941 Eluent Production Module	
MSM-HC Rotor C	6.2842.200

