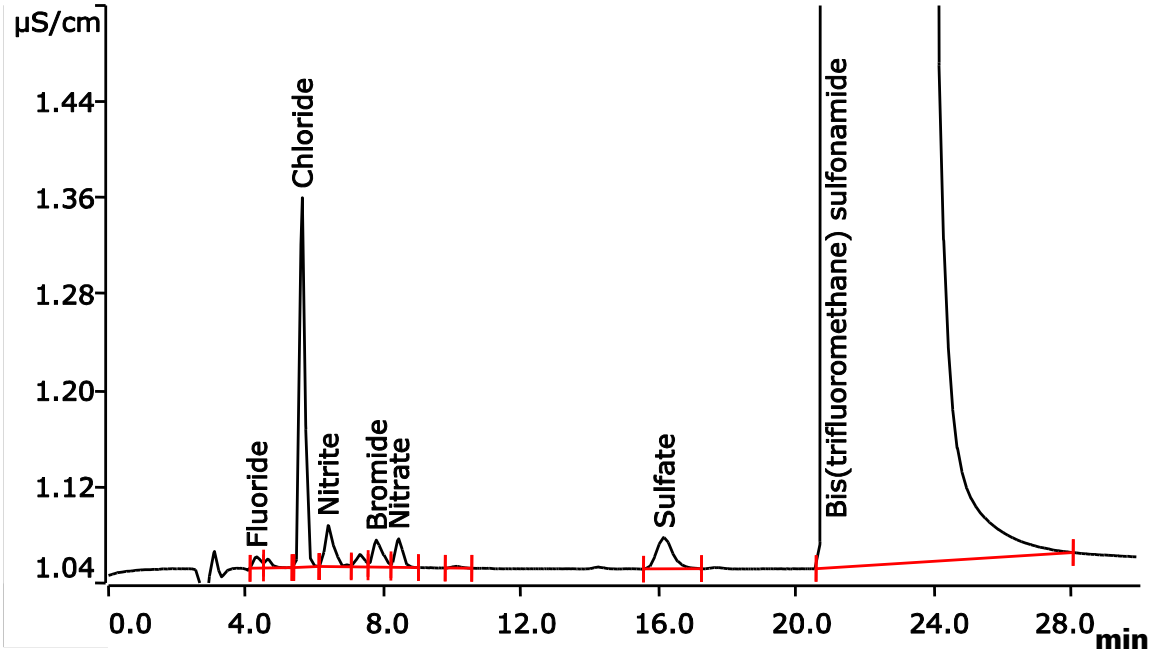
IC Application Note S–299

Standard anions in an ionic liquid (1-butyl-1-methylpyrrolidinium bis(trifluoromethane) sulfonimide)



Ionic liquids, also denominated as «designer solvents», are organic salts that are liquid at low temperatures. They are powerful solvents and conduct the electric current and are therefore used in many applications. Anions, in particular halogenides, are common byproducts in the manufacturing of ionic liquids for which reason their concentration has to be controlled.

Results

Anion	[mg/g]
Fluoride	0.022
Chloride	0.207
Nitrite	0.070
Bromide	0.085
Nitrate	0.067
Sulfate	0.080

Metrohm

Method description

Sample

1-Butyl-1-methylpyrrolidinium bis(trifluoromethane) sulfonimide (ionic liquid)

Sample preparation

Injection after Inline Ultrafiltration of 1 g/L ionic liquid in 10% acetonitrile

Column

Metrosep A Supp 5 - 150/4.0	6.1006.520
Metrosep A Supp 4/5 Guard/4.0	6.1006.500

Solutions

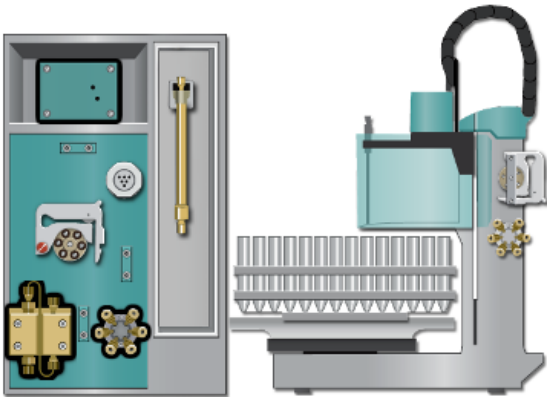
Eluent	3.2 mmol/L sodium carbonate 1.0 mmol/L sodium hydrogen carbonate 10% acetonitrile
Regenerant	100 mmol/L sulfuric acid
Rinsing solution	Ultrapure water

Analysis

Suppressed conductivity

Parameters

Flow rate	0.7 mL/min
Injection volume	20 µL
P_{max}	15.0 MPa
Recording time	30 min
Column temperature	30 °C



Instrumentation

881 Compact IC pro	2.881.0030
858 Professional Sample Processor – Pump	2.858.0020