IC Application Note No. U-8

Title:	**Trace anions in magnesium chloride ($MgCl_2$) applying anion chromatography with conductivity detection after chemical suppression and subsequent UV/VIS detection**

***Summary*:**	Determination of traces of fluoride, bromide, nitrate, phosphate and sulfate applying anion chromatography with conductivity detection after chemical suppression and subsequent UV/VIS detection.

Sample:	Magnesium chloride ($MgCl_2$)
Sample Preparation:	dissolve 1 g of $MgCl_2$ in 1 L ultrapure water

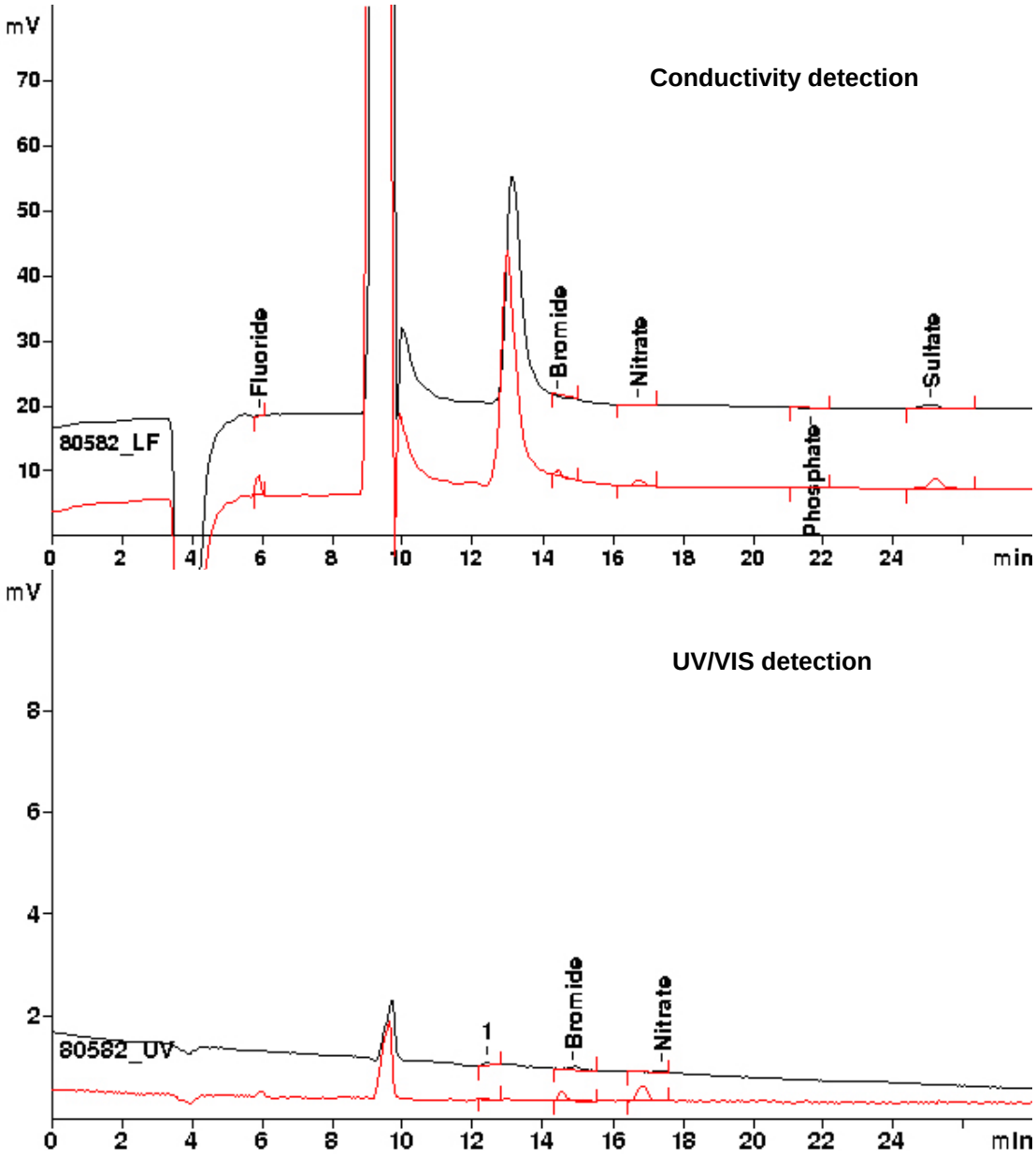
Column:	6.1006.530 Metrosep A Supp 5 – 250
Wavelength:	210 nm
Eluent:	3.2 mmol/L sodium carbonate 1.0 mmol/L sodium hydrogencarbonate
Flow:	0.7 mL/min
Injection Volume:	20 µL

Results: in the dilution	Fluoride µg/L	Bromide mg/L	Nitrate mg/L	Phosphate mg/L	Sulfate mg/L
Conductivity, direct injection	**n.d.**	**6.1**	**1.0**	**n.d.**	**14.0**
UV, direct injection		**10.7**	**1.5**		
Conductivity, spiked with 20 µg/L	**17.1**	**22.6**	**21.5**	**17.6**	**35.2**
UV, spiked with 20 µg/L		**30.0**	**22.8**		

Bromide and nitrate results with UV detection are better because the system peak (just in front of bromide) does not interfere.

Results: in the salt	Fluoride mg/kg	Bromide mg/kg	Nitrate mg/kg	Phosphate mg/kg	Sulfate mg/kg
Conductivity, direct injection	**< 5**			**< 5**	**14**
UV, direct injection		**11**	**< 5**		

Chromatograms see next page.



— Sample directly injected
— Sample spiked with 20 µg/L