

IC Application Note No. S-192

Title: Online determination of acids in an etching bath with inline dilution

Summary: Determination of fluoride, nitrate, phosphate, sulfite and sulfate in an etching bath using anion chromatography with conductivity detection after chemical suppression.

Sample: Etching solution

Sample Preparation: Dilution of 178 µL sample with 19.8 mL of ultrapure water

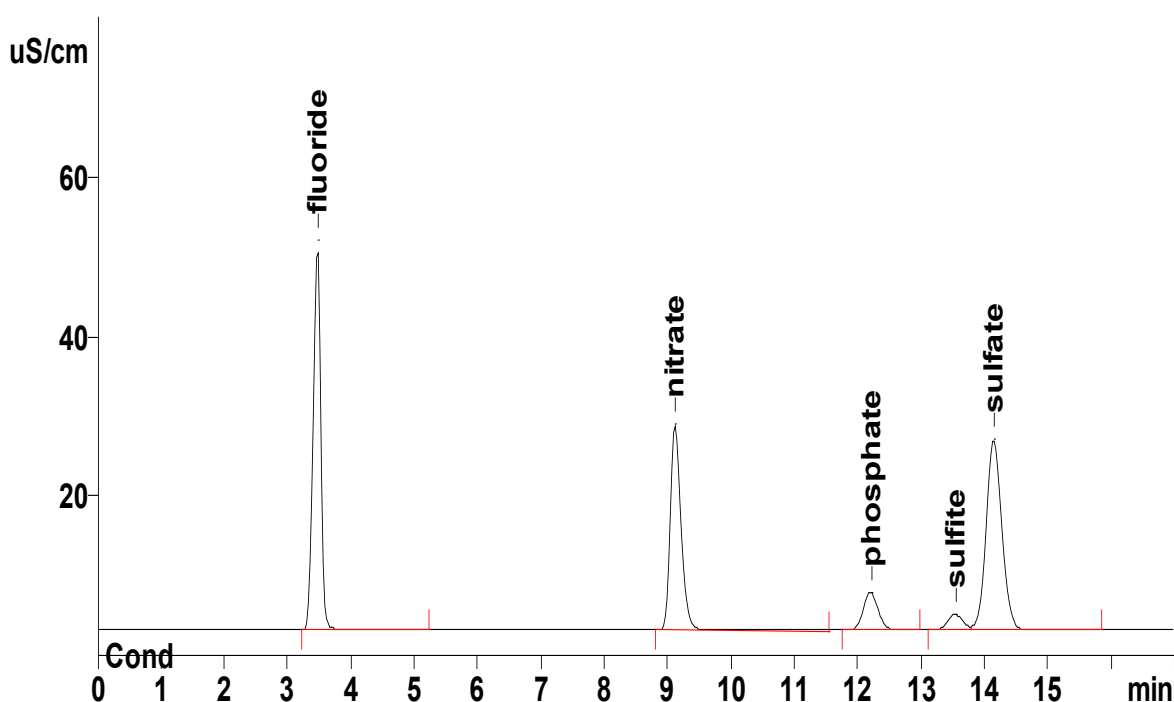
Column: 6.1006.520 Metrosep A Supp 5 – 150

Eluent: 3.2 mmol/L sodium carbonate
1.0 mmol/L sodium hydrogencarbonate

Suppressor: Metrohm Suppressor Module (MSM, 50 mmol/L sulfuric acid)

Flow: 0.7 mL/min

Injection Volume: 250 nL (internal loop)

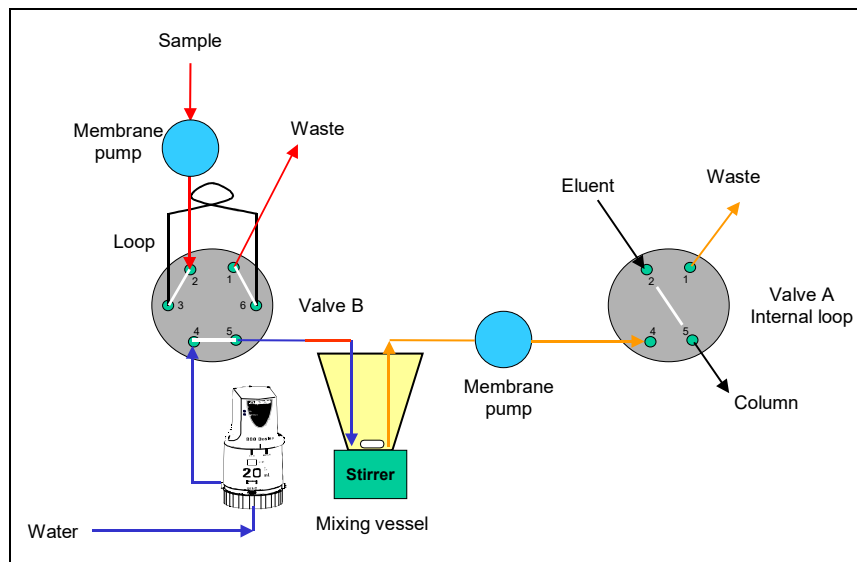


Results:	Fluoride g/100g	Nitrate g/100g	Phosphate g/100g	Sulfite g/100g	Sulfate g/100g
	14.7	27.6	15.7	6.59	29.0

Sample Preparation

The substrate is transferred by a membrane pump to a 178 μL loop, rinsed with 19.8 mL of water into the mixing vessel, stirred and then transferred by a second membrane pump to the injection valve which is equipped with an internal loop (250 nL). During the run of the chromatogram the mixing vessel is rinsed with 20 mL of water. Using this procedure the concentrated substrate gets only in contact with the first membrane pump and valve A. The fixed loop guarantees a good reproducibility.

Dilution Diagram



The dilution kit is integrated in the 811 Online IC, well arranged on the panel of the wet compartment.