

IC Application Note No. S-254

Title: MISP – Metrohm Inline Ultrafiltration – Cross Contamination < 0.1%

Summary: Determination of the cross contamination of 100 mg/L of fluoride, chloride, nitrite, bromide, nitrate, phosphate and sulfate to ultrapure water using anion chromatography with conductivity detection after chemical suppression and Inline Ultrafiltration.

Sample: 100 mg/L multi-ion standard / ultrapure water

Sample Preparation: Direct injection after Inline Ultrafiltration and 4 min prerinsing with ultrapure water after the injection of the 100 mg/L standard

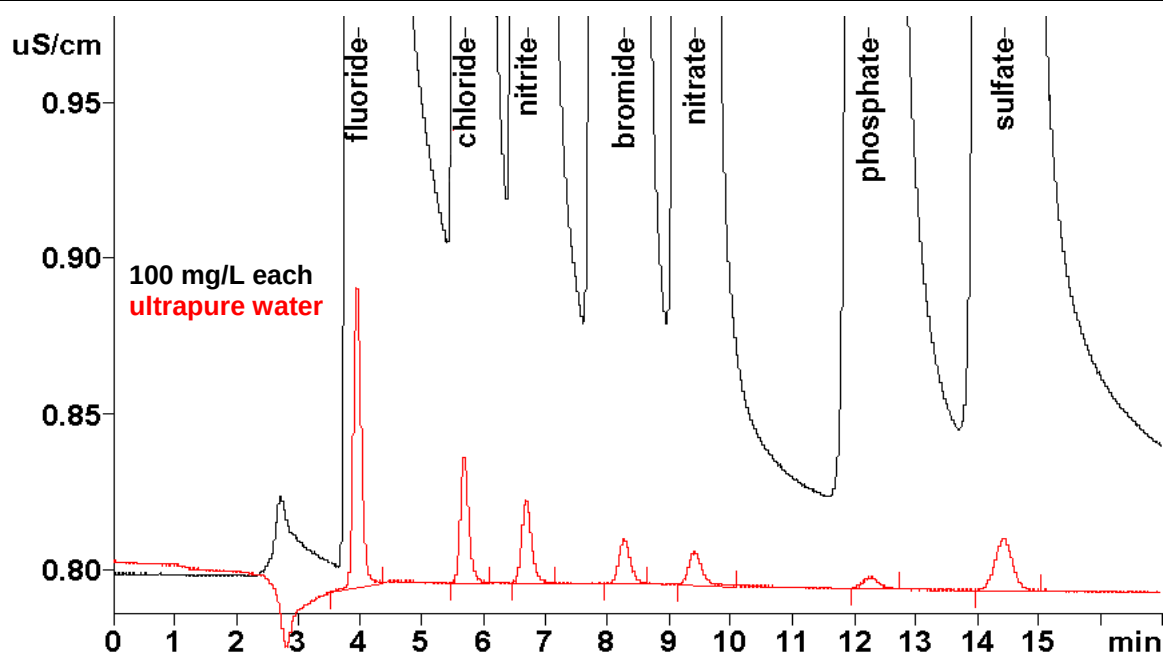
Column: 6.1006.520 Metrosep A Supp 5 – 150

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

Suppressor: Metrohm Suppressor Module (MSM, 50 mmol/L H₂SO₄)

Flow: 0.7 mL/min

Injection Volume: 20 µL



Results:	Fluoride %	Chloride %	Nitrite %	Bromide %	Nitrate %	Phosphate %	Sulfate %
Cross contamination	0.04	0.04	0.04	0.05	0.03	0.04	0.05

Data:

	Fluoride	Chloride	Nitrite	Bromide	Nitrate	Phosphate	Sulfate
Area (1 mg/L [*]) mean of 3	21.6492	11.8459	7.8371	4.5517	5.9292	2.7791	7.6533
Area (ultrapure water) # 1	0.8547	0.3882	0.2720	0.1851	0.1658	0.0946	0.3498
Area (ultrapure water) # 2	0.9675	0.4309	0.3112	0.2133	0.1981	0.1198	0.4167
Area (ultrapure water) # 3	0.9972	0.4458	0.3301	0.2179	0.1950	0.1181	0.4245
Area (ultrapure water) # 4	0.9955	0.4411	0.3279	0.2173	0.1954	0.1254	0.4222
Area (ultrapure water) # 5	0.9956	0.4391	0.3299	0.2222	0.1845	0.1172	0.4224
Area (ultrapure water) # 6	0.8748	0.3944	0.3002	0.1880	0.1732	0.0745	0.3465
Cross contamination % #1	0.039	0.033	0.035	0.041	0.028	0.034	0.046
Cross contamination % #2	0.045	0.036	0.040	0.047	0.033	0.043	0.054
Cross contamination % #3	0.046	0.038	0.042	0.048	0.033	0.042	0.055
Cross contamination % #4	0.046	0.037	0.042	0.048	0.033	0.045	0.055
Cross contamination % #5	0.046	0.037	0.042	0.049	0.031	0.042	0.055
Cross contamination % #6	0.040	0.033	0.038	0.041	0.029	0.027	0.045
Mean %	0.044	0.036	0.040	0.046	0.032	0.041	0.053

* 1% of sample solution content.