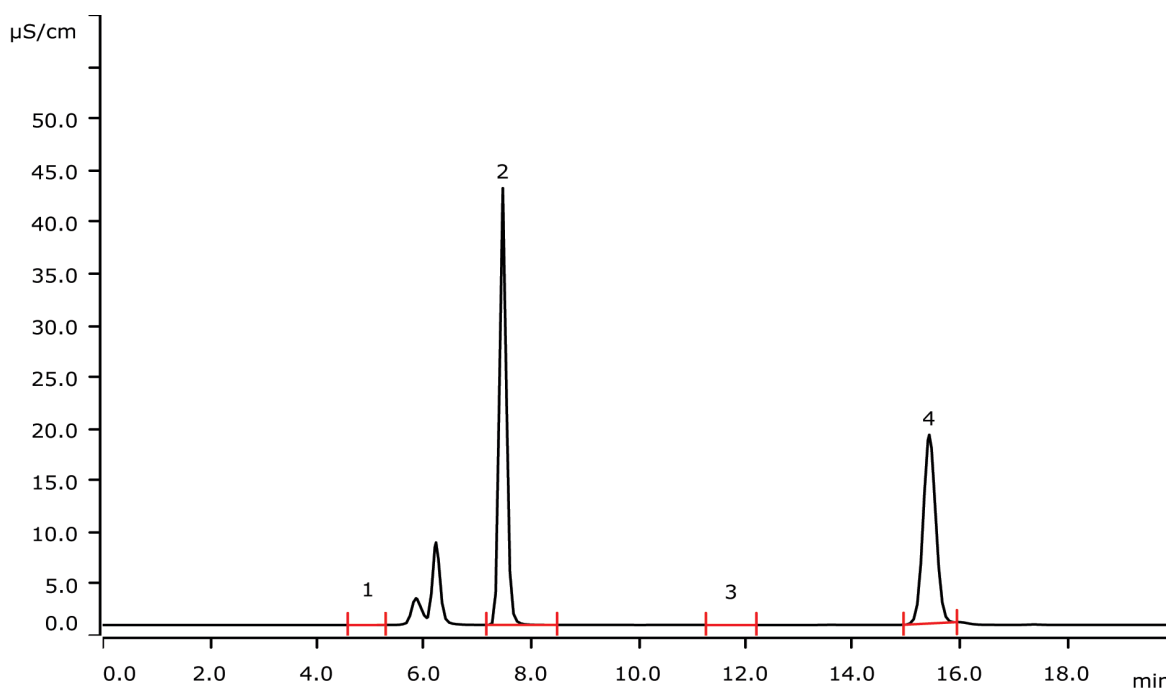


Inline Ultrafiltration with Dosino backflush for tannery effluents



Inline Ultrafiltration is a proven sample preparation technique for samples slightly or moderately contaminated with particles, algae, or bacteria. It combines sample filtration directly with injection. Typically, more than 100 samples can be filtrated with a single membrane. In this application, the setup includes a backflush option that increases the lifetime of the membrane by an additional rinsing step, particularly when dealing with highly polluted wastewaters such as that of tanneries. While the membrane is clogged with a few injections using the standard setup, the backflush mode allows to run approximately 300 injections per membrane.

Results

Anion		Concentration [g/L]	Anion		Concentration [g/L]
1	Fluoride	n.d.	3	Nitrate	n.d.
2	Chloride	1.42	4	Sulfate	1.51

Sample

Tannery wastewater

Sample preparation

Inline Ultrafiltration with membrane backflush.

Columns

Metrosep A Supp 5 - 250/4.0	6.1006.530
Metrosep RP 2 Guard/3.5	6.1011.030

Solutions

Eluent	4.8 mmol/L sodium carbonate 1.5 mmol/L sodium hydrogen carbonate
Suppressor regenerant	50 mmol/L sulfuric acid 50 mmol/L phosphoric acid
Rinsing solution	Ultrapure water
Dosino backflush	10% methanol
UF cleaning solution (during backflush)	1% hydrogen peroxide

Analysis

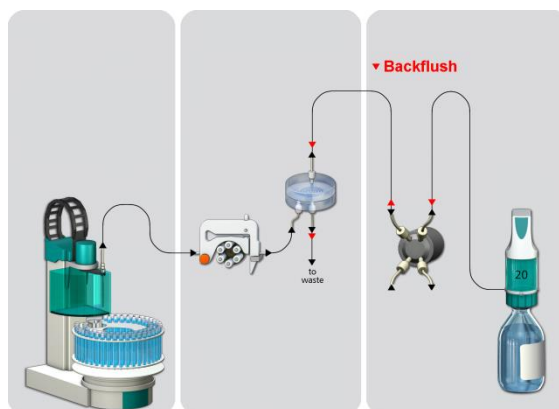
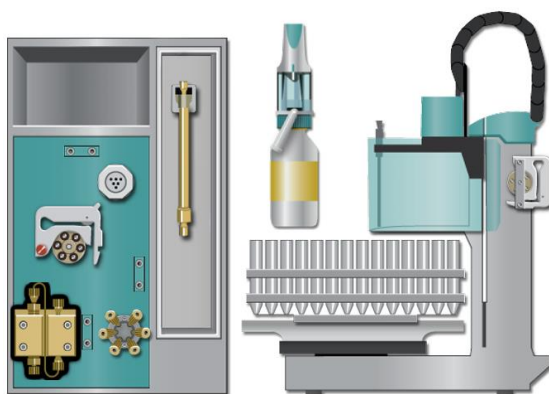
Conductivity detection after sequential suppression

Parameters

Flow rate	0.7 mL/min
Injection volume (internal loop)	0.25 µL
P _{max}	15 MPa
Recording time	20 min
Column temperature	36 °C
Dosino speed	0.5 mL/min

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
800 Dosino	2.800.0010
Dosing unit 20 mL	6.3032.220
MSM Rotor A	6.2832.000
Adaptor sleeve for Suppressor Vario	6.2842.020
IC equipment: Ultrafiltration	6.5330.110
PTFE capillary 0.97 mm i.d. / 5 m (as buffer tubing between Dosino and injector)	6.1803.020
Internal Loop IC equipment: 4-port stator and 0.25 µL rotor	6.5334.000



www.metrohm.com

 **Metrohm**