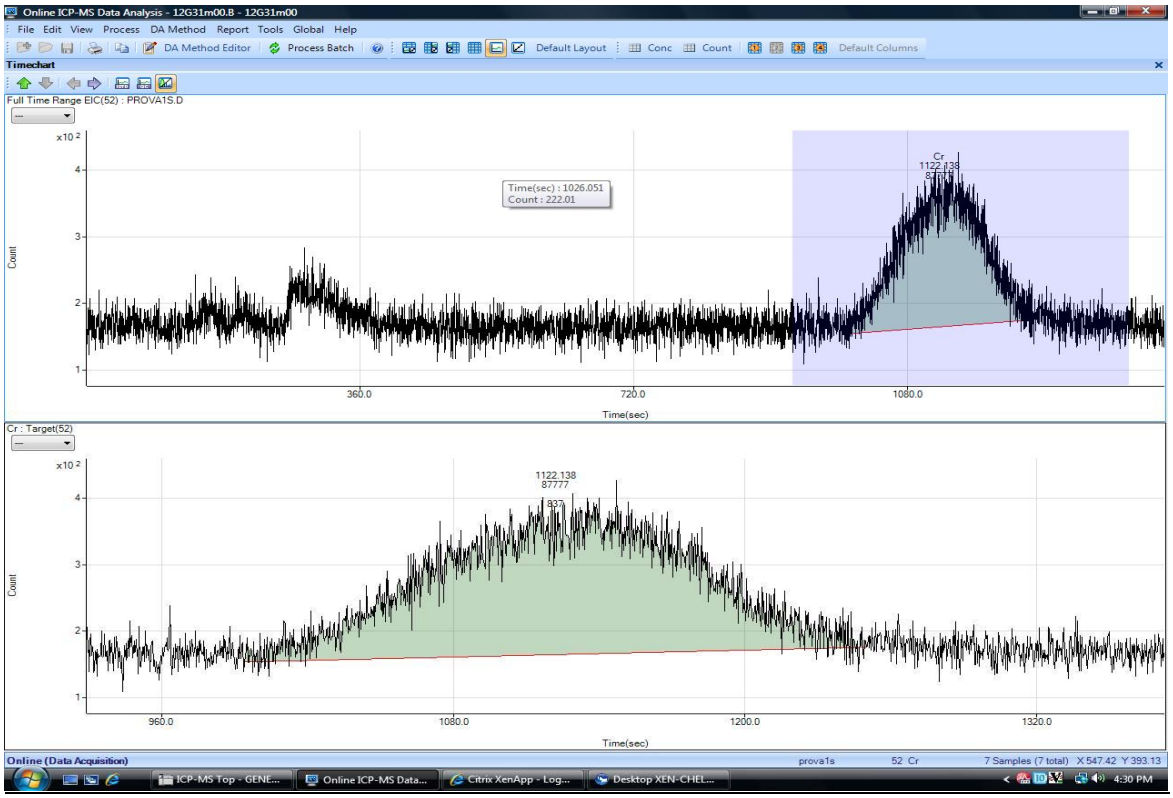
IC Application Note M–8

Determination of chromate in water applying IC-ICP/MS detection



Hexavalent chromium (chromate) is considered toxic and potentially carcinogenic for which reason its concentration in environmental and drinking water should be as low as possible. The determination of Cr(VI) can be ideally done by ion chromatography coupled to ICP/MS. The separation is performed on a Metrosep A Supp 1 Guard/4.6 column. The chromatogram stems from a chromium-spiked (1 µg/L).wastewater sample.

Results

	Conc. [µg/L]	SIM ion [m/z]
Waste water spiked	1.0	52

Metrohm

Sample

Wastewater spiked with 1 µg/L chromate

Sample preparation

None

Columns

Metrosep A Supp 1 Guard/4.6	6.1005.340

IC Solutions

Eluent	4.6 mmol/L sodium carbonate
Suppressor regenerant	100 mmol/L sulfuric acid
Rinsing	Ultrapure water

ICP/MS Solutions

Internal standard 1	0.1 mg/L yttrium
Internal standard 2	0.1 mg/L scandium

Parameters

Flow rate	0.35 mL/min
Injection volume	500 µL
P_{max}	15 MPa
Recording time	20 min

Parameters ICP/MS

Torque	2.5 mm
Nebulizer	0.4 mL/min
Internal Std Flow	0.25 mL/ min
Mode	Collision
M/z	52
Sea Spray	Gacp
Spray Chamber	Double pass
Acquisition mode	Time resolved

Analysis

ICP/MS detection

Instrumentation

930 Compact IC Flex ChS/PP/Deg	2.930.1360
ICP-MS Agilent 7700	
Cetac ASX Autosampler	
Remote box	6.2148.010