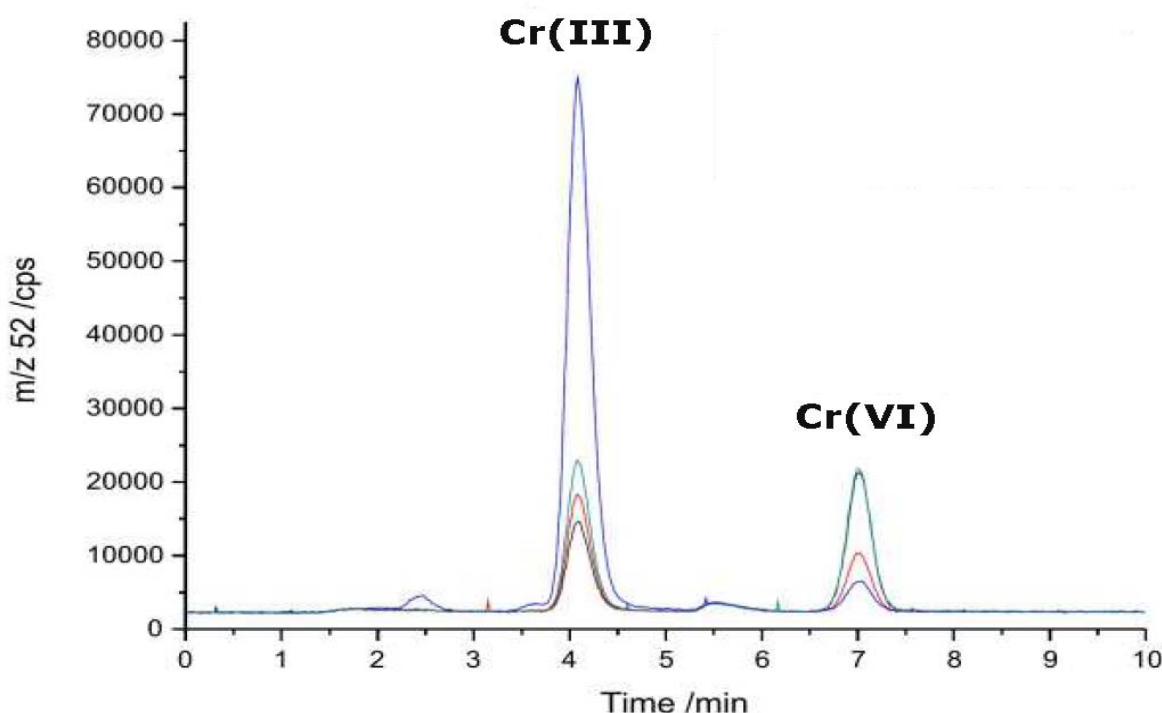


Speciation of Cr(III) and Cr(VI) on Metrosep Carb 2 - 100/2.0 applying IC-ICP/MS



The speciation of trivalent – Cr(III) – and hexavalent – Cr(VI) – chromium is important due to the toxic nature of the latter. Here, the two species are separated as Cr(III)-EDTA complex and chromate on a Metrosep Carb 2 - 100/2.0 column. This microbore column requires no flow splitting and allows direct injection into the ICP/MS for detection.

Results

Standard [$\mu\text{g/L}$]	1	2	3	4	LOD
Cr (III)	1.0	0.8	4.0	0.6	0.11
Cr (VI)	1.0	0.4	0.2	1.0	0.01

Sample

Standards made up in eluent plus 20 µmol/L EDTA

Sample preparation

None

Columns

Metrosep Carb 2 – 100/2.0	6.01090.210
Metrosep Carb 2 Guard/2.0	6.01090.600

IC Solutions

Eluent	100 mmol/L ammonium nitrate, pH = 9 (NH ₄ OH)
--------	--

Parameters

Flow rate	0.2 mL/min
Injection volume (MiPT)	20 µL
P _{max}	20 MPa
Recording time	10 min
Monitoring mass Cr	52 amu
Mode	Collision cell (He mode)

Analysis

ICP/MS detection

Instrumentation

940 Professional IC Vario ONE	2.940.1100
Agilent ICP-MS 7500ce ICP-MS	
858 Professional Sample Processor	2.858.0020

