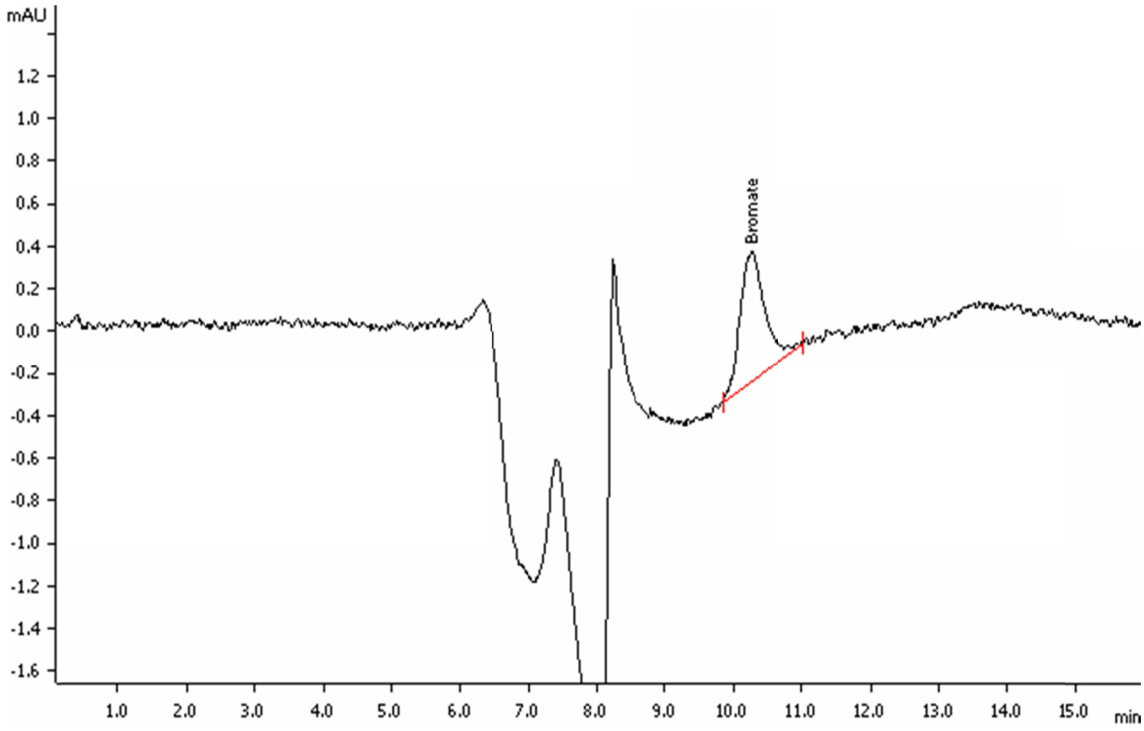
IC Application Note U–51

Bromate with 887 Professional UV/VIS Detector and 886 Professional Thermostat / Reactor according to ISO 11206



Bromate is a disinfection byproduct generated by ozonation during drinking water purification. It is undesirable, because it is a suspected human carcinogen. ISO 11206 describes its determination by IC with UV detection after post-column reaction. Bromate oxidizes iodide in acid solution to iodine. This forms with iodide the triiodide (I_3^-) which absorbs at 352 nm.

Results

Mineral water spiked	Bromate
Spike: 0.5 µg/L	0.501 µg/L

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Method description

Sample

Drinking water, mineral water

Sample preparation

Direct injection

Column

Phenomenex Star-Ion™ A300 HC - 100/10.0	6.1005.100
Metrosep BP 1 Guard/2.0	6.1015.000

Solutions

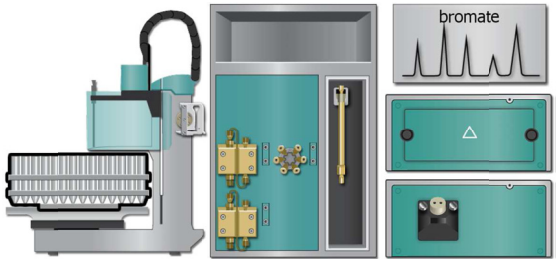
Eluent	100 mmol/L H_2SO_4 / 19.3 µmol/L ammonium heptamolybdate
Post-column reagent	0.27 mol/L KI

Analysis

UV detection	352 nm

Parameters

Flow rate column	0.8 mL/min
Flow rate PCR	0.2 mL/min
Injection volume	1000 µL
P_{max}	20.0 MPa
Recording time	16 min
Column temperature	30 °C
PCR temperature	30 °C
Measuring duration	300 ms

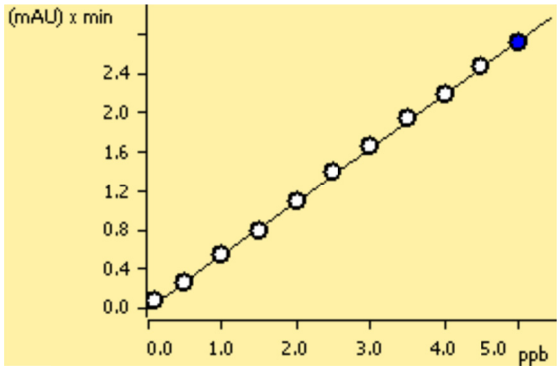


Instrumentation

Professional IC Cation – HP Gradient	2.850.1220
858 Professional Sample Processor	2.858.0020
887 Professional UV/VIS Detector	2.887.0010
886 Professional Reactor	2.886.0110

Calibration curve

Standard Number	Concentration [µg/L]
1	5.0
2	4.5
3	4.0
4	3.5
5	3.0
6	2.5
7	2.0
8	1.5
9	1.0
10	0.5
11	0.1



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