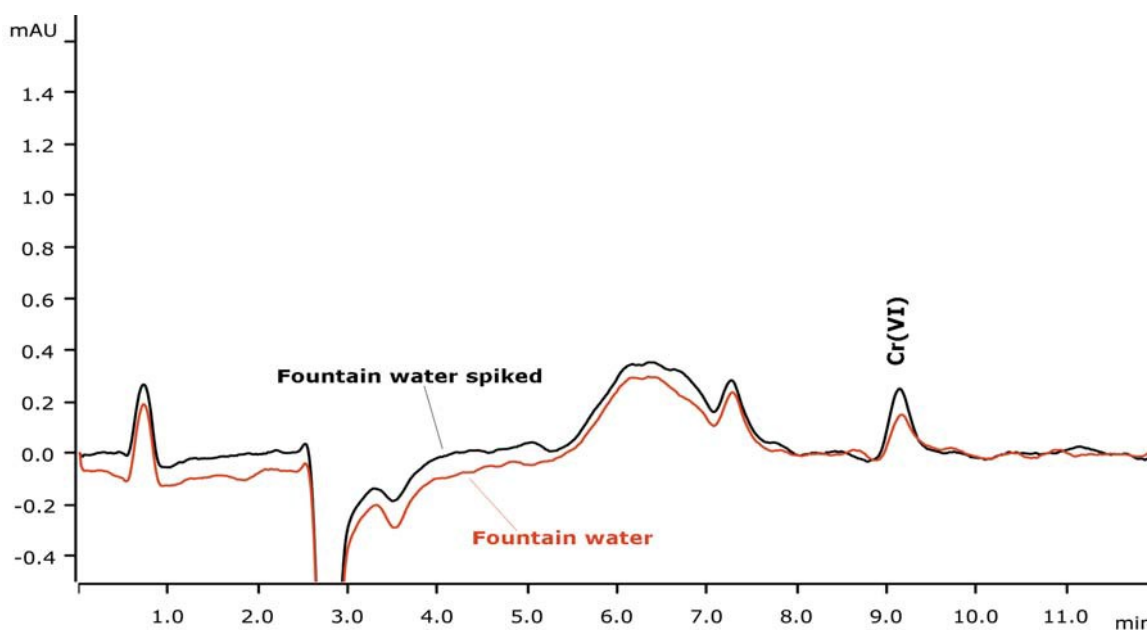


# Chromate using PCR and UV/VIS detection according to EPA 218.7



Hexavalent chromium (Cr(VI)) 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 done by ion chromatography. The separation is performed on a Metrosep A Supp 10 - 250/2.0 column. After post-column reaction (PCR) with diphenylcarbazide, Cr(VI) is spectrophotometrically detected.

## Results

Fountain water	Concentration	Recovery
Cr(VI) (chromate)	0.032 µg/L	-
Spike (0.020 µg/L Cr(VI))	0.055 µg/L	105%

## Sample

Environmental water

## Sample preparation

In accordance to section 8 of US EPA method 218.7.

## Columns

Metrosep A Supp 10 - 250/2.0	6.1020.230
Metrosep A Supp 10 Guard/2.0	6.1020.600

## Solutions

Eluent	100 mmol/L ammonium sulfate 100 mmol/L ammonium hydroxide
PCR reagent	2.0 mmol/L 1,5-diphenyl-carbazide

## Parameters

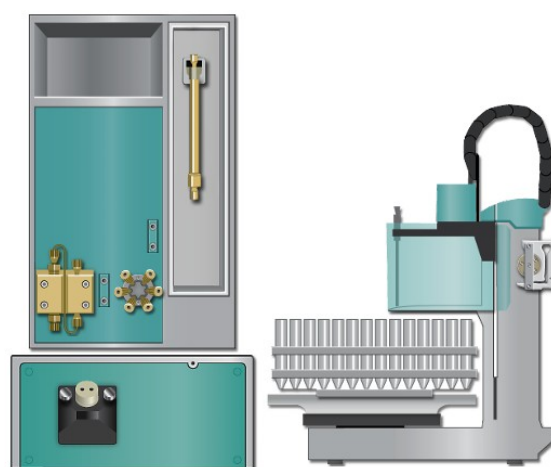
Flow rate	0.3 mL/min
Flow rate PCR	0.2 mL/min
Injection volume	1000 µL
P <sub>max</sub>	25 MPa
Recording time	12 min
Column temperature	50 °C
PCR temperature	50 °C
Light source (VIS)	Tungsten halogen lamp
Wavelength	530 ± 15 nm
Reference	650 ± 21 nm

## Analysis

Visible detection after PCR

## Instrumentation

930 Compact IC Flex Oven/Deg	2.930.2160
858 Professional Sample Processor – Pump	2.858.0020
943 Professional Reactor Vario	2.943.0110
944 Professional UV/VIS Detector Vario	2.944.0010



## Results of environmental Samples and spikes

Sample	Cr(VI) [µg/L]	Recovery [%]
Fountain water	0.032	-
Fountain water spike	0.055	105
Filtered tap water	0.044	-
Filtered tap water spiked	0.068	109
Ultrapure water	Not detected	-