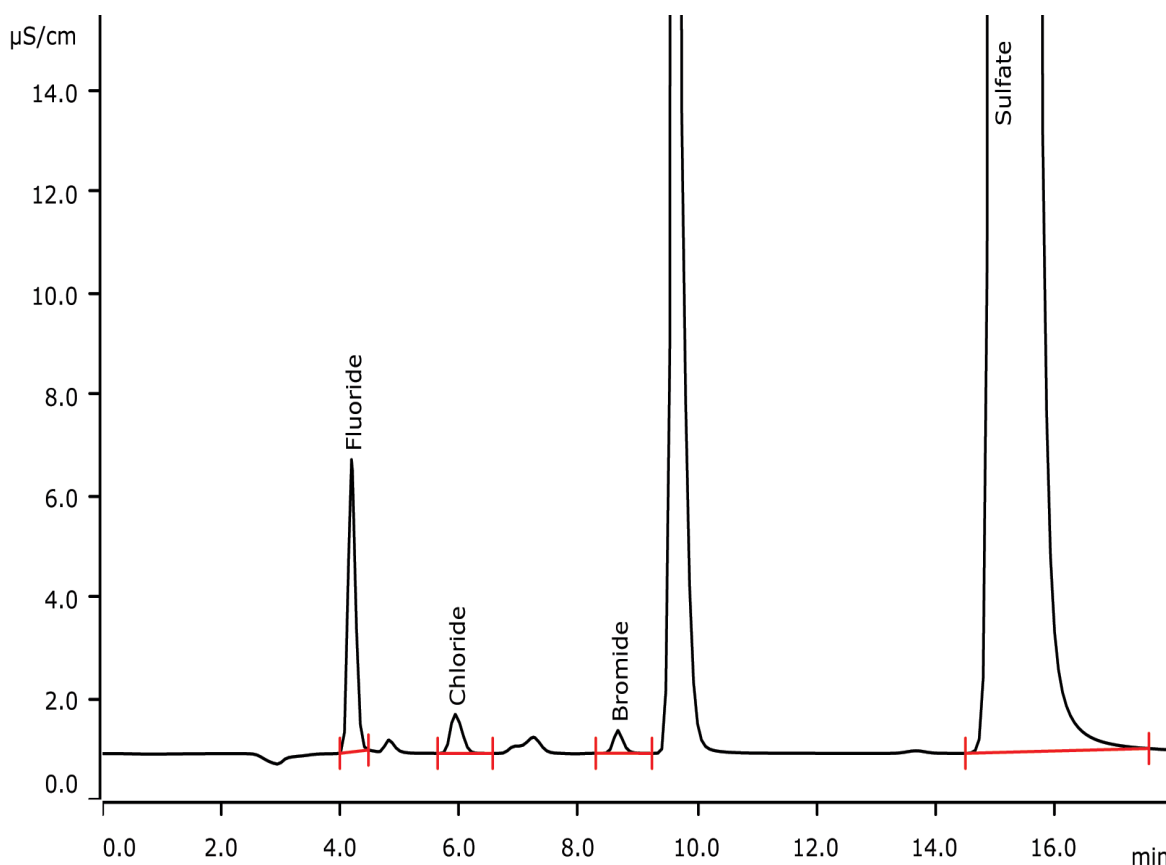


# Trace level halogens in coal with Metrohm Combustion IC



Combustion of coal releases halogens into the atmosphere. In coal, fluorine and chlorine are of natural origin, whereas bromine is often added to reduce mercury emissions. Here, the results of Combustion IC for three coal samples with varying bromide levels are presented.

## Results

	Coal 14		Coal 24		Coal 82	
	Mean [ $\mu\text{g/g}$ ]	RSD [%] n = 7	Mean [ $\mu\text{g/g}$ ]	RSD [%] n = 7	Mean [ $\mu\text{g/g}$ ]	RSD [%] n = 3
Fluorine	23.5	5.7	29.7	-	30.5	-
Chlorine	6.5	6.6	6.8	-	7.3	-
Bromine	14.2	2.8	23.4	3.8	81.6	0.7

Sulfate not quantified

## Sample

Coal

## Sample preparation

The sample is analyzed by Combustion IC with flame sensor technology and intelligent Partial Loop Injection Technique with Inline Matrix Elimination.

## Columns

Metrosep A Supp 5 - 150/4.0	6.1006.520
Metrosep A Supp 4/5 Guard/4.0	6.1006.500
Metrosep A PCC 1 HC/4.0	6.1006.310

## Solutions

Eluent	3.2 mmol/L sodium carbonate 1.0 mmol/L sodium hydrogen carbonate
Suppressor regenerant	100 mmol/L sulfuric acid
Rinsing solution	STREAM
Absorber solution	100 mg/L hydrogen peroxide

## Parameters

Flow rate	0.7 mL/min
Injection volume (IC)	200 µL (MiPT)
P <sub>max</sub>	15 MPa
Recording time	18 min
Column temperature	30 °C

## Combustion parameters

Argon	100 mL/min
Oxygen	300 mL/min
Oven temperature	1050 °C
Post-combustion time	180 s
Initial volume of absorption solution	2.0 mL
Water inlet	0.2 mL/min

## Analysis

Conductivity after sequential suppression

## Instrumentation

930 Compact IC Flex Oven/SeS/PP/Deg	2.930.2560*
IC Conductivity Detector	2.850.9010*
MSM Rotor A	6.2832.000*
Adapter sleeve for Suppressor Vario	6.2842.020*
920 Absorber Module	2.920.0010*
Combustion Module (oven and ABD)	2.136.0700*
Autosampler MMS 5000	2.136.0800
Kit for solid sampling	6.7302.000

\* available as 930 Metrohm Combustion IC (2.930.9010)

