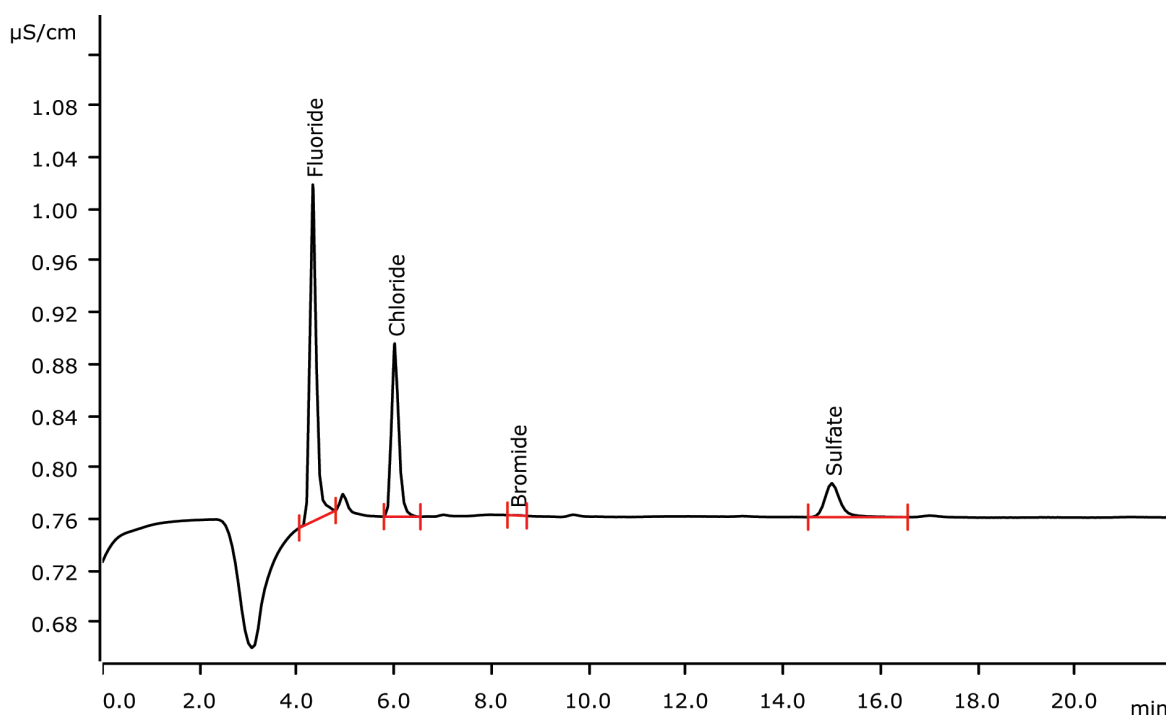


Halogens in LPG applying Metrohm Combustion IC



A liquefied petroleum gas (LPG) sample consisting of butane and propane is analyzed for fluorine and chlorine content. Fluorine and chlorine originate from perfluorobutane and methylchloride, respectively. 50 μL of the sample is injected in the combustion system using the LPG/GSS Module. The combustion products are analyzed by IC applying intelligent Partial Loop Injection Technique after Inline Matrix Elimination.

Results

	Mean [$\mu\text{g/g}$]	RSD [%] n = 5
Fluorine	1.88	1.2
Chlorine	1.85	0.9
Bromine	n.d.	-
Sulfate	0.15	1.2

Sample

Liquefied petroleum gas (LPG)

Sample preparation

The sample is analyzed by Combustion IC 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 _{max}	15 MPa
Recording time	22 min
Column temperature	30 °C

Combustion parameters

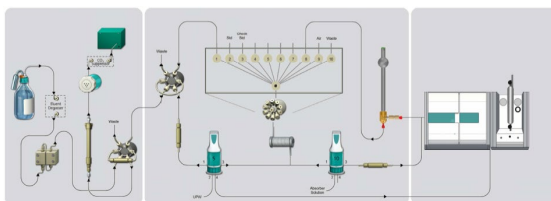
Argon	100 mL/min
Oxygen	300 mL/min
Oven temperature	1050 °C
Post-combustion time	120 s
Initial volume of absorption solution	2.0 mL
Water inlet	0.1 mL/min
Injection Volume (LPG/GSS)	50 µL

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 gas module)	2.136.0730



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