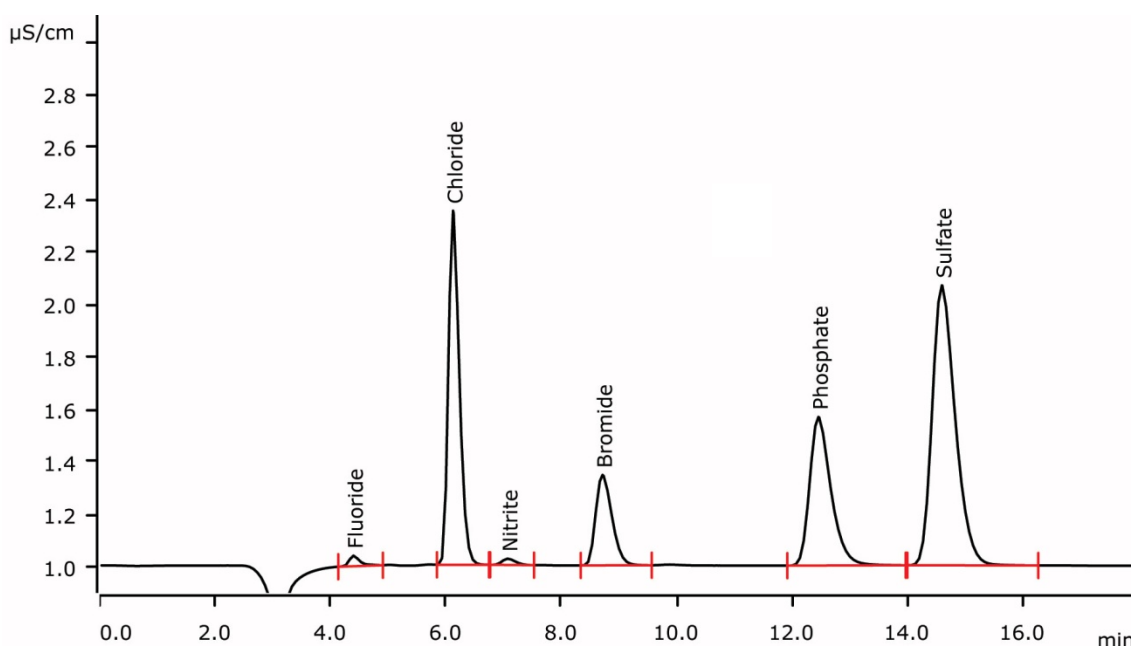


Chlorine, bromine, and sulfur in low-density polyethylene (ERM[®]-EC680k) applying Combustion IC



Halogen and sulfur analysis in waste material is crucial. The inline combination of the Mitsubishi combustion module with Metrohm IC offers the right tool for these types of samples. To prove recovery, a certified reference material, e.g., low-density polyethylene (LDPE), is analyzed.

Results

Analyte	[mg/kg]	RSD [%]	Recovery [%]
Chlorine	97.14	2.9	95.1
Bromine	93.29	4.0	97.2
Sulfur	75.48	2.9	99.3

Phosphate as internal standard (1.0 mg/L), other ions are not quantified

Method description

Sample

ERM[®]-EC680k, low-density polyethylene

Sample preparation

Combustion, inline injection of the absorption solution after Inline Matrix Elimination

Column

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	Ultrapure water
Absorption solution	30 mg/L hydrogen peroxide 1 mg/L phosphate

Analysis

Suppressed conductivity

Parameters

Flow rate	0.7 mL/min
Injection volume	100 µL
P _{max}	15.0 MPa
Recording time	18 min
Column temperature	30 °C

Combustion parameters

Oven temperature	
Inlet / Outlet	900 / 1000 °C
Absorption solution	5.0 mL

Instrumentation

881 Compact IC pro – Anion – MCS	2.881.0030
IC Conductivity Detector	2.850.9010
800 Dosino	2.800.0010
Remote box	6.2148.010
Mitsubishi AQF-100	*
Mitsubishi ABC-100	*
Mitsubishi WS-100	*
Mitsubishi GA-100	*

* from local Mitsubishi distributor / not shown in system graphic below

