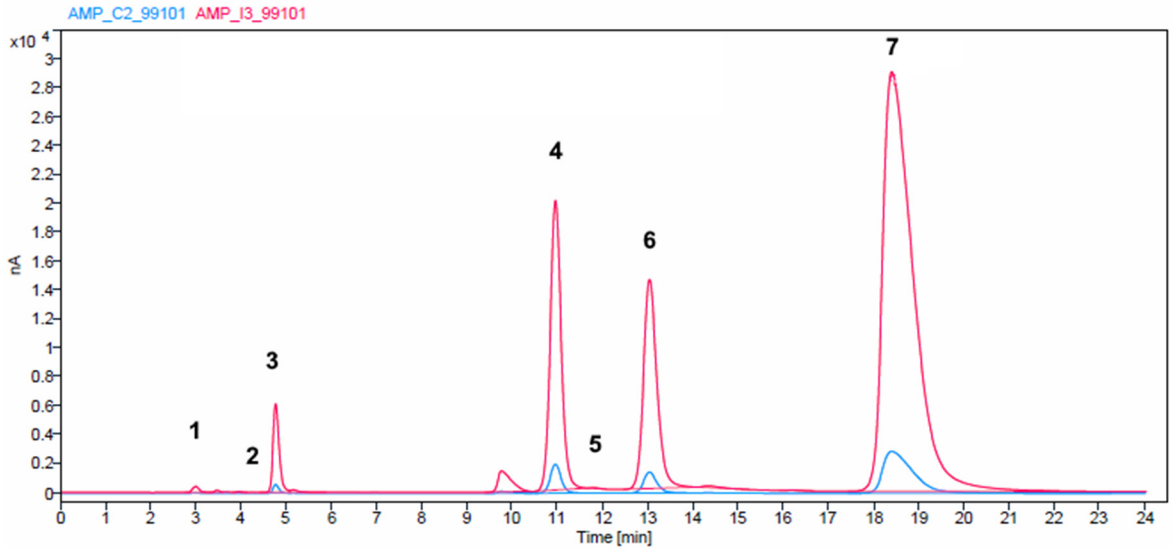
IC Application Note P–081

Metrohm IC Driver for OpenLab CDS: Carbohydrates applying PAD in a soft drink

Determination of sugars and sugar alcohols in a soft drink with pulsed amperometric detection; control and data acquisition by OpenLab CDS.



Chromatogram of sugars and sugar alcohols in a soft drink acquired by OpenLab CDS (red = current, blue = charge).

The Metrohm IC Driver for OpenLab CDS opens ion chromatography to the world of HPLC, running under OpenLab CDS. In this application, a soft drink is analyzed for sugars and sugar alcohol content applying pulsed amperometric detection.

Results

	Anion	Result [g/100 mL]	RSD [%]
1	Inositol	0.01	0.9
2	Arabitol	n.q.	-
3	Sorbitol	0.14	0.4
4	Glucose	0.91	0.2
5	Xylose	n.q.	-
6	Fructose	1.17	1.5
7	Sucrose	9.69	0.3

Metrohm

Sample

Soft drink

Sample preparation

200 mL soft drink diluted with 380 mL ultrapure water and 20 mL ethanol.

Columns

Metrosep Carb 2 - 150/4.0	6.1090.420
Metrosep Carb Guard/4.0	6.1090.500

IC Solutions

Anion eluent	100 mmol/L sodium hydroxide 10 mmol/L sodium acetate

Instrumentation

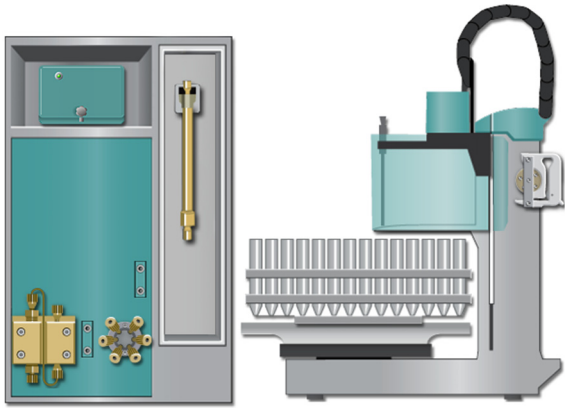
930 Compact IC Flex Oven/Deg	2.930.2160
IC Amperometric Detector	2.850.9110
858 Professional Sample Processor	2.858.0020
IC equipment Wall-Jet cell: Carb (Au, Pd)	6.5337.010
Metrohm IC Driver 1.0 for Openlab CDS	6.6080.100
OpenLab CDS 2.4 (Agilent)	

Analysis

Pulsed amperometric detection

Parameters

Flow rate	0.5 mL/min
Injection volume	20 µL
P_{max} (anions)	20 MPa
Detector temperature	33 °C
Column temperature	30 °C
Recording time	24 min
Detection mode	PAD
E 1	0.05V
E 2	0.55 V
E 3	-0.1 V
t 1	300 ms
t 2	50 ms
t 3	200 ms
Measuring duration	100 ms
Range	200 µA
Channel	current



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