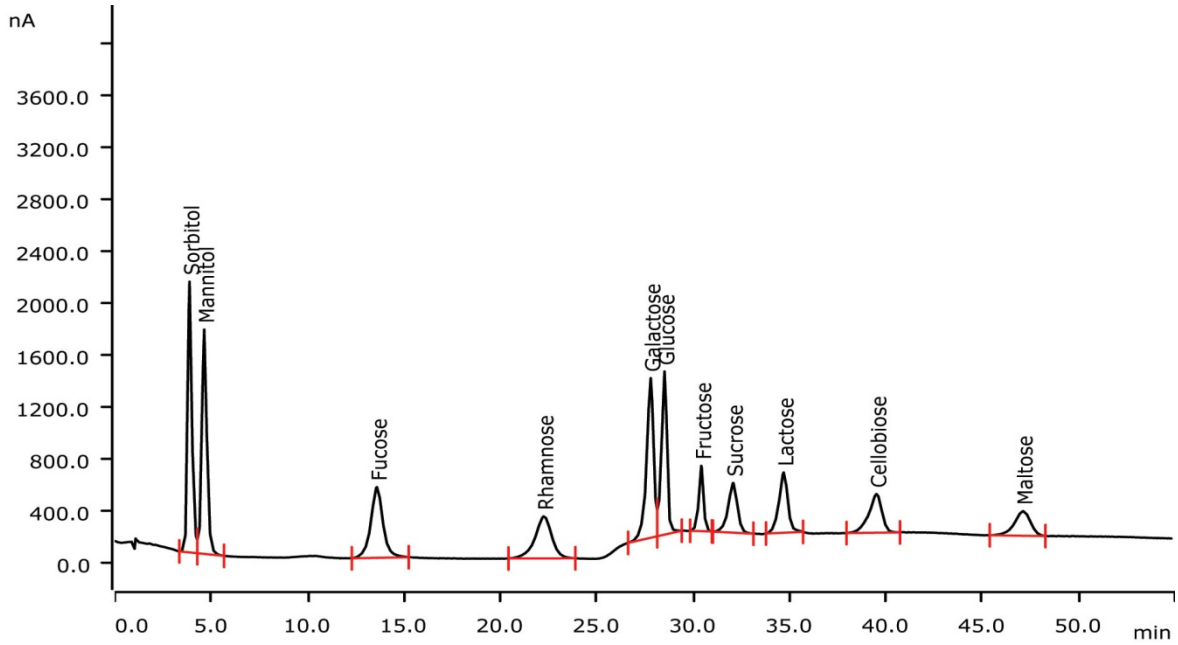
IC Application Note P–47

Sugars and sugar alcohols applying pulsed amperometric detection after separation using a Dose-in Gradient



Analysis of sugars and sugar alcohols is crucial in food analysis. The Dose-in Gradient setup adds gradient capability to a standard IC system. By only adding a 800 Dosino and a T-piece, the isocratic system becomes a binary gradient system.

Results

Sorbitol, mannitol, fucose, rhamnose, galactose, glucose, fructose, sucrose, lactose, cellobiose, maltose	8.0 mg/L

Metrohm

Sample

Standard solution

Sample preparation

none

Columns

Hamilton RCX - 30 - 150/4.6	6.1018.010
Metrosep RP 2 Guard/3.5	6.1011.030
Metrosep A Trap 1 - 100/4.0	6.1014.000

Solutions

Eluent A	180 mmol/L sodium hydroxide
Eluent B	5.0 mmol/L sodium hydroxide

Parameters

Flow rate	1.1 mL/min
Injection volume	20 µL
P_{max}	34 MPa
Recording time	55 min
Column temperature	30 °C

PAD Parameters

Cell	Wall-Jet cell
Working electrode	Gold
Reference electrode	Palladium
Spacer	50 µm
Meas. range	200 µA
Meas. duration	100 ms
Cycle duration	550 ms
Temperature	30 °C
Mode	PAD
Meas. potential	50 mV

Analysis

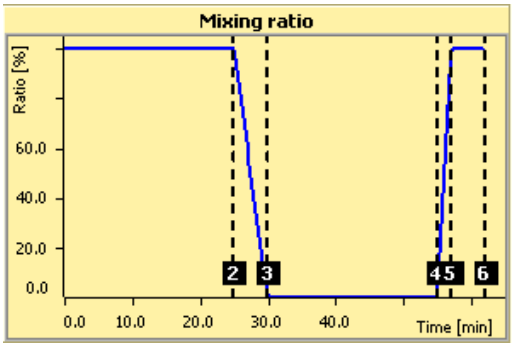
Pulsed amperometric detection after Dose-in Gradient

Instrumentation

881 Compact IC pro – Cation	2.881.0010
IC Amperometric Detector	2.850.9110
858 Professional Sample Processor – Pump	2.858.0020
IC equipment for Wall-Jet cell (Au, Pd)	6.5337.010
800 Dosino	2.800.0010
Dosing Unit 50 mL	6.3032.250

Gadient profile

Time	Ratio B [%]	Curve
Start	100.0	
25.0	100.0	Linear
30.0	0.0	Linear
55.0	0.0	Linear
57.0	100.0	Linear
62.0	100.0	Linear



Flow chart Dose-in Gradient

Function: the IC pump acts as an isocratic pump and delievers a constant flow of 0.7 mL/min. Depending on the gradient profile, the Dosino delivers a part of the flow, while the rest is still taken from Eluent A. Without running the Dosino, the system is a straightforward isocratic IC.