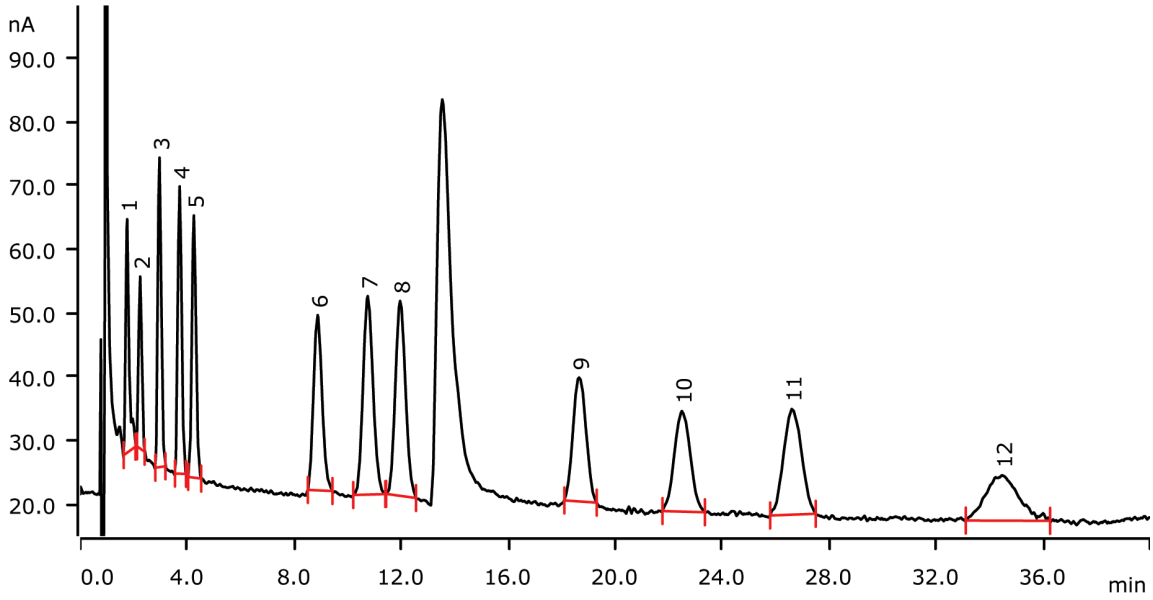
IC Application Note P–54

# Anhydrosugars besides sugar alcohols and sugars collected on air filters




Due to residential wood burning, concentrations of levoglucosan, mannosan, and galactosan are typically elevated during the winter months. By contrast, during the summer months, an increased contribution of primarily biological sugar components can be expected. When analyzing the saccharidic tracers collected on air filters, optimal separation and sensitivity are achieved on the Metrosep Carb 2 - 150/4.0 column applying pulsed amperometric detection.

## Results

| Compound | Conc. [µg/L] | | Conc. [µg/L] |
|---|---|---|---|
| 1 Inositol | 10.0 | 7 Mannosan | 50.0 |
| 2 Erythritol | 10.0 | 8 Galactosan | 50.0 |
| 3 Arabitol | 20.0 | 9 Rhamnose | 50.0 |
| 4 Sorbitol | 20.0 | 10 Glucose | 50.0 |
| 5 Mannitol | 20.0 | 11 Xylose | 50.0 |
| 6 Levoglucosan | 50.0 | 12 Sucrose | 50.0 |

Metrohm

## Sample

Standard solution

## Sample preparation

none

## Columns

| | |
|---|---|
| Metrosep Carb 2 - 150/4.0 | 6.1090.420 |
| Metrosep Carb 2 Guard/4.0 | 6.1090.500 |
| Metrosep $CO_3$ Trap 1 - 100/4.0 | 6.1015.300 |

## Solutions

| | |
|---|---|
| Eluent | 10.0 mmol/L sodium hydroxide |

## Parameters

| | |
|---|---|
| Flow rate | 1.0 mL/min |
| Injection volume | 100 µL |
| Recording time | 38 min |
| Column temperature | 45 °C |

## PAD Parameters

| | |
|---|---|
| Cell | Wall-Jet cell |
| Working electrode | Gold (3 mm) |
| Reference electrode | Palladium |
| Spacer | 50 µm |
| Measuring potential | 50 mV |
| Meas. range | 200 µA |
| Meas. duration | 100 ms |
| Cycle duration | 550 ms |
| Temperature | 32 °C |
| Mode | PAD |

## Analysis

Pulsed amperometric detection

## Instrumentation

| | |
|---|---|
| 930 Compact IC Flex Oven | 2.930.2100 |
| IC Amperometric Detector | 2.850.9110 |
| 889 IC Sample Center | 2.889.0010 |
| IC equipment Wall-Jet cell: anion analysis (Au, Pd) | 6.5337.010 |