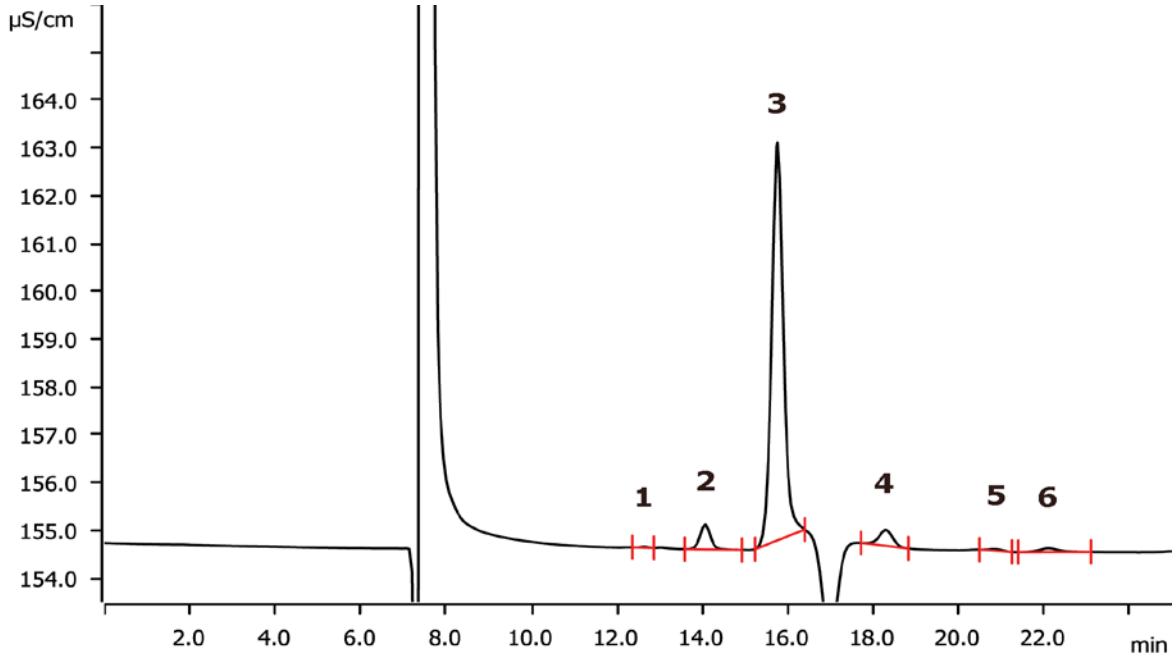
IC Application Note O–45

# Organic acids in monoethylene glycol by ion-exclusion chromatography with inverse suppression




Monoethylene glycol (MEG) is used to remove water from natural gas before further processing. Due to high temperatures applied, glycol degradation to glycolic, formic, and acetic acid may occur. These reactions are unwanted as the emerging acids are corrosive. The determination of the organic acids is achieved by ion-exclusion chromatography with conductivity detection after inverse suppression.

## Results

| | | Concentration [mg/L] | | | Concentration [mg/L] |
|---|---|---|---|---|---|
| 1 | Gylcolic acid | 9.6 | 4 | Propionic acid | 42.3 |
| 2 | Formic acid | 31.1 | 5 | Carbonic acid | n.q. |
| 3 | Acetic acid | 753.3 | 6 | unknown | n.q. |

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## Sample

Monoethylene glycol

## Sample preparation

Metrohm Inline Ultrafiltration.

## Columns

| | |
|---|---|
| Metrosep Organic Acids - 250/7.8 | 6.1005.200 |
| Metrosep Organic Acids Guard/4.6 | 6.1005.250 |

## Solutions

| | |
|---|---|
| Eluent | 1.0 mmol/L sulfuric acid |
| Suppressor regenerant | 100 mmol/L lithium chloride |
| Rinsing solution | STREAM |

## Analysis

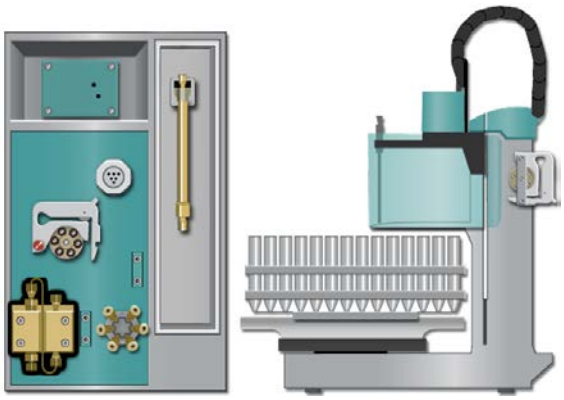
| |
|---|
| Conductivity detection after inverse suppression |

## Parameters

| | |
|---|---|
| Flow rate | 0.5 mL/min |
| Injection volume | 20 µL |
| $P_{max}$ | 7 MPa |
| Recording time | 25 min |
| Column temperature | 50 °C |

## Instrumentation

| | |
|---|---|
| 930 Compact IC Flex Oven/ChS/PP/Deg | 2.930.2360 |
| IC Conductivity Detector | 2.850.9010 |
| 858 Professional Sample Processor | 2.858.0020 |
| MSM Rotor A | 6.2832.000 |
| Adapter sleeve for Suppressor Vario | 6.2842.020 |
| IC equipment: Inline Ultrafiltration | 6.5330.110 |



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