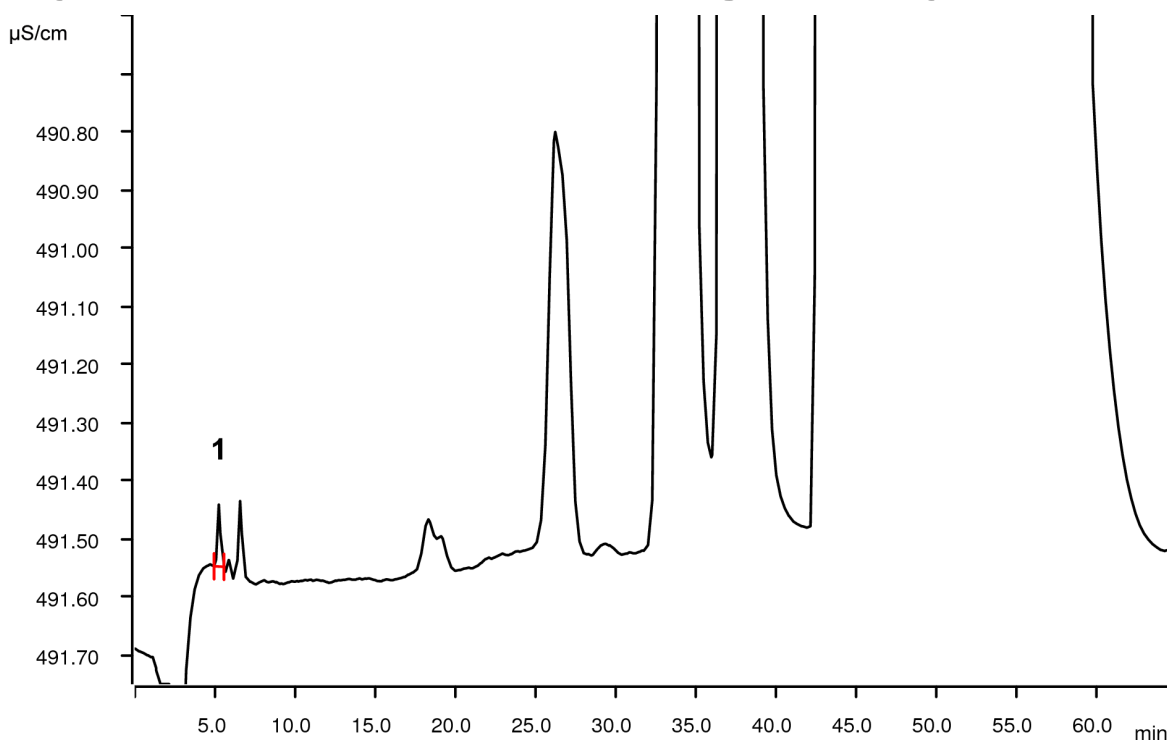


Bicine in gas sweetening solvent by cation chromatography



Bicine (2-(Bis(2-hydroxyethyl)amino)acetic acid) is a corrosive component. It has to be avoided in acidic gas sweetening solvents. These solvents are based on organic amines. Bicine is amphoteric, holding a carboxylic and an amine group. Under the applied conditions, the amine groups are at least partially protonated and therefore may be separated by cation chromatography. The detection mode is direct conductivity detection.

Results

Cation	Conc. [mg/L]	Recov. [%]
1 Bicine	545.1	2.9

All other peaks are not identified

Sample

Amine for gas sweetening solvent

Sample preparation

2 g of sample is dissolved in 80 mL eluent. pH adjustment to 3 with 2 mol/L nitric acid. Subsequently water is eluent is added to get a final volume of 100 mL.

Columns

Metrosep C 6 - 250/4.0	6.1051.430
Metrosep C 6 Guard/4.0	6.1051.500

Solutions

Eluent	1.5 mmol/L oxalic acid
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Instrumentation

940 Professional IC Vario ONE	2.940.1100
IC Conductivity Detector	2.850.0010
858 Professional Sample Processor	2.858.0020

Analysis

Direct conductivity detection

Parameters

Flow rate	1.0 mL/min
Injection volume	20 μ L
P _{max}	25 MPa
Total recording time	65 min
Column temperature	45 °C

