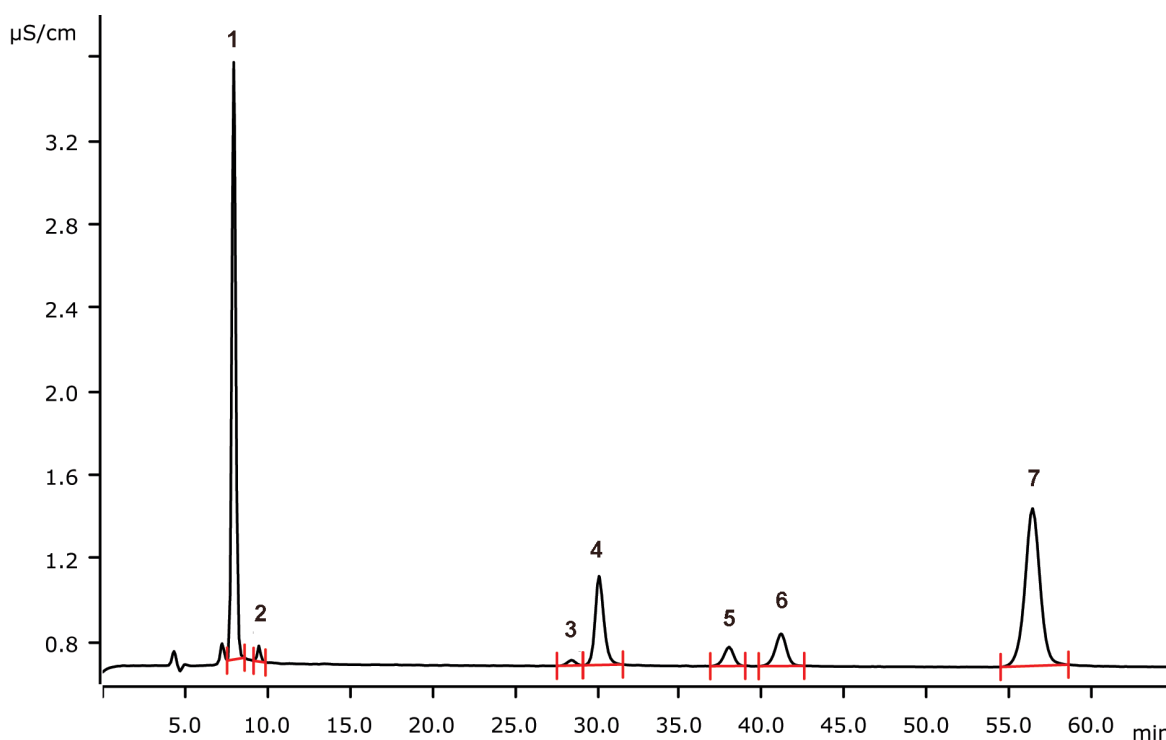


Heat stable salt in methyl-diethanolamine solution



Natural gas production requires the removal of acidic gases (e.g., H₂S and CO₂). These are removed by treatment with alkanolamines or alkylalkanolamines such as methyldiethanolamine (MDEA). In these solutions, heat stable salts (HSS) may accumulate and need to be monitored. The analysis of the heat stable salts in MDEA solutions is performed on a Metrosep A Supp 5 - 250/4.0 column with conductivity detection after sequential suppression.

Results

Anion	Conc. [mg/L]	Recovery [%]	Anion	Conc. [mg/L]	Recovery [%]
1 Formate	11.5	91.2	5 Sulfate	1.12	96.9
2 Chloride	0.18	-	6 Oxalate	2.57	93.7
3 Sulfite	1.40	53.52	7 Thiosulfate	19.14	101.2
4 Thiocyanate	6.43	101.2			

Low sulfite recovery due to interaction with MDEA

Sample

30% methyldiethanolamine in ultrapure water

Sample preparation

Direct injection.

Columns

Metrosep A Supp 5 - 250/4.0	6.1006.530
Metrosep A Supp 4/5 Guard/4.0	6.1006.500

Solutions

Eluent	2.0 mmol/L sodium carbonate 1.0 mmol/L sodium hydrogen carbonate 10% acetone
Suppressor regenerant (Dosino regeneration)	1 mol/L sulfuric acid
Rinsing solution	STREAM

Instrumentation

930 Compact IC Flex Oven/SeS/Deg	2.930.2460
IC Conductivity Detector	2.850.9010
858 Professional Sample Processor	2.858.0020
800 Dosino	2.800.0010
MSM-HC Rotor A	6.2842.000

Analysis

Conductivity detection after sequential suppression

Parameters

Flow rate	0.7 mL/min
Injection volume	10 µL
P _{max}	15 MPa
Recording time	65 min
Column temperature	40 °C

