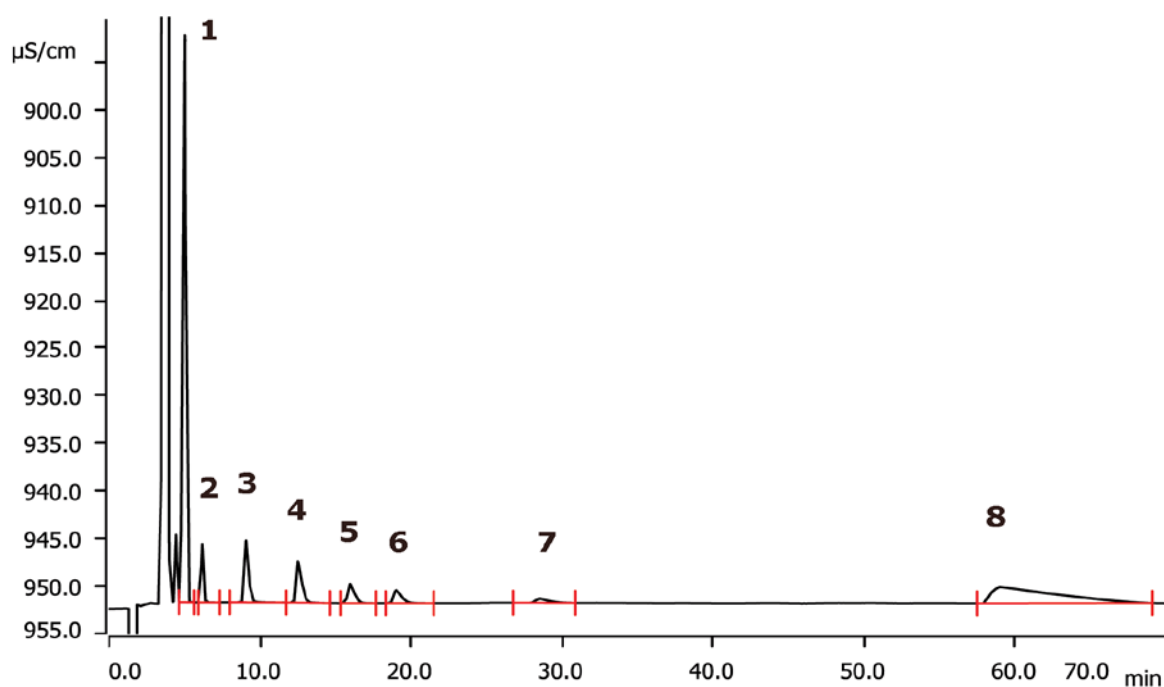


# N-methyldiethanolamine, piperazine and standard cations in scrubber solutions



N-methyldiethanolamine and piperazine are used in scrubber solutions, e.g., in the natural gas process. Testing this type of samples by ion chromatography requires a good resolution and the separation of amines from standard cations. The separation is achieved on a Metrosep C 4 - 150/4.0 column applying direct conductivity detection.

## Results

Cation (5/50 mg/L each)*	Ret. time [min]	Resolution	Cation (10/50 mg/L each)*	Ret. time [min]	Resolution
1 Ammonium	4.8	5.1	5 Calcium	15.2	3.2
2 Potassium	6.1	7.9	6 Strontium	18.4	7.2
3 MDEA	9.1	4.3	7 Barium	27.5	10.8
4 Magnesium	11.9	3.7	8 Piperazine	61.9	-

\*Inorganic cations: 5 mg/L; amines: 50 mg/L; ammonium: not quantified

### Sample

Standard

### Sample preparation

None.

### Columns

Metrosep C 4 - 150/4.0	6.1050.420
Metrosep C 4 Guard/4.0	6.1050.500

### Solutions

Eluent	3.0 mmol/L nitric acid
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### Analysis

Direct conductivity detection

### Instrumentation

930 Compact IC Flex Oven/Deg	2.930.2160
IC Conductivity Detector	2.850.9010
858 Professional Sample Processor	2.858.0020

### Parameters

Flow rate	0.9 mL/min
Injection volume	10 $\mu$ L
P <sub>max</sub>	25 MPa
Recording time	70 min
Column temperature	45 °C

