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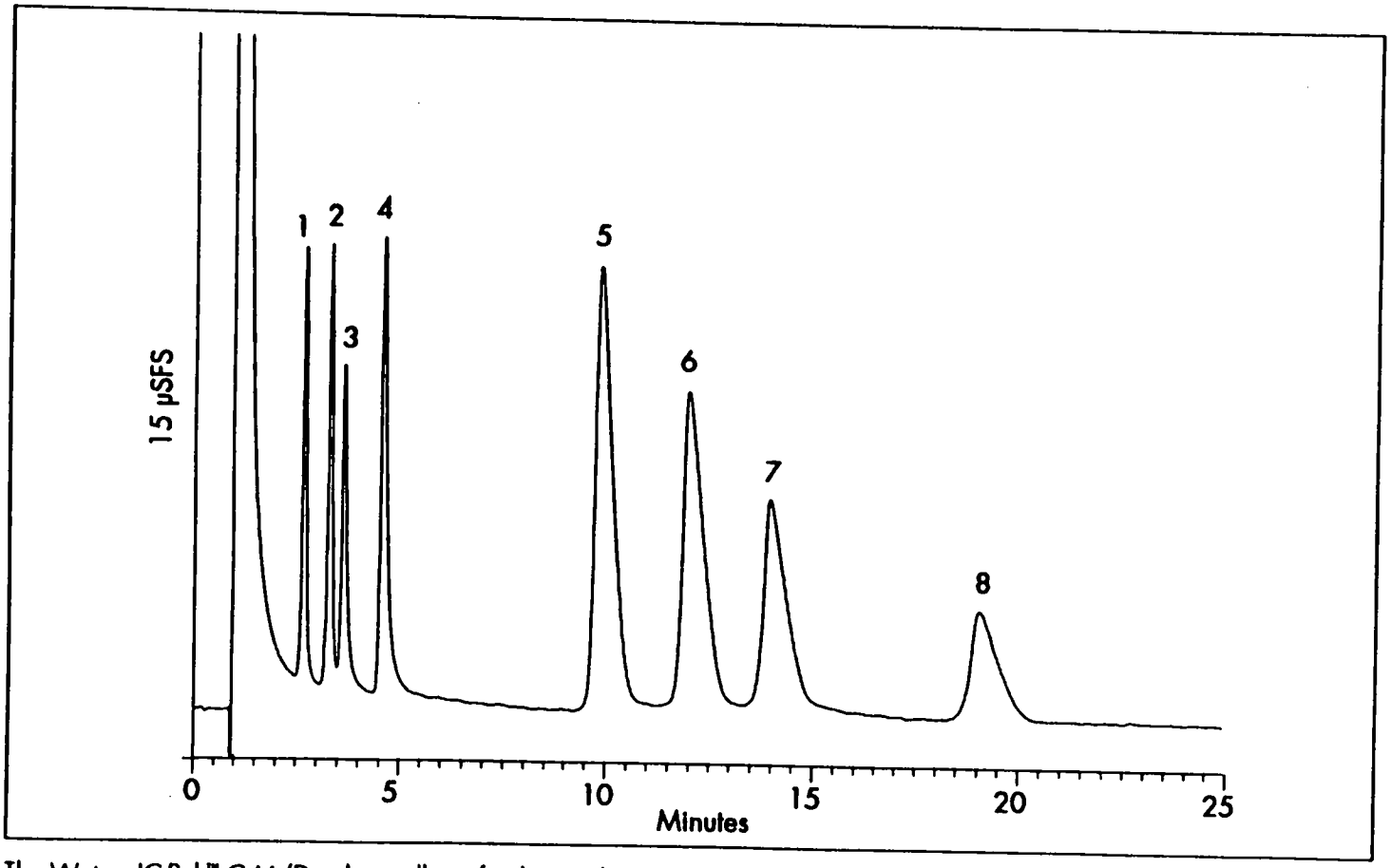
Simultaneous Analysis of Monovalent and Divalent Cations



Conditions:

Sample: Monovalent and divalent cation standard mix

Column: IC-Pak™ C M/D, 5 µm, 3.9 x 150 mm, P/N 36570

Eluent: 0.1 mM EDTA (free acid)/3.0 mM Nitric acid

Flow Rate: 1.0 ml/min.

Detection: Conductivity

Injection Volume: 100 µl

Peak ID's:

1. Lithium	0.25 ppm
2. Sodium	1.0 ppm
3. Ammonium	1.0 ppm
4. Potassium	3.0 ppm
5. Magnesium	2.0 ppm
6. Calcium	3.0 ppm
7. Strontium	5.0 ppm
8. Barium	5.0 ppm

The Waters IC-Pak™ C M/D column allows for the simultaneous, isocratic separation of monovalent and divalent cations in only 20 minutes. Detection limits for most species shown are less than 10 ppb. This method is also applicable to the analysis of amines and alkanolamines.

Objective:

The objective of this application note is to demonstrate the ease of simultaneous analysis of monovalent and divalent cations utilizing the Waters IC-Pak™ C M/D column under isocratic conditions.

Details:

Plasticware must be used for the preparation and storage of all eluents, standards, and samples to prevent sodium contamination from borosilicate glassware.

System:

The system used consisted of a polymeric ACTION Analyzer with a 431 Conductivity detector, 860 Expert Ease Data System (signal via SIM).

References:

Alden, P. G., Jandik, P., and Krol, J., "A Sensitive, Linear, Practical Method For The Analysis Of Monovalent And Divalent Cations By Ion Chromatography", Paper presented at 1991 Pittsburgh Conference.

"Simultaneous Analysis Of Monovalent/Divalent Cations And Ethanolamines Using Coordination Chromatography", ION ANALYSIS NOTES, Vol. 3, NO. 1, p. 11-13.