



Metrohm Columns and their application

Trace monitoring of strontium and barium in industrial brines with preconcentration

Chlor-alkali process: Ensuring longer membrane lifetime

In the chlor-alkali industry, caustic and chlorine are produced through electrolytic decomposition of sodium chloride. The electrolysis of the brine occurs on a non-permeable ion exchange membrane. However, the membranes are fairly expensive and extremely sensitive to fouling from multivalent cations. Therefore, a high purity of the brine is essential to ensure their functionality and a long lifetime.

With a continuous monitoring of multivalent cationic impurities such as strontium and barium in the brines, premature membrane fouling can be prevented as well as significant costs for replacement and maintenance.

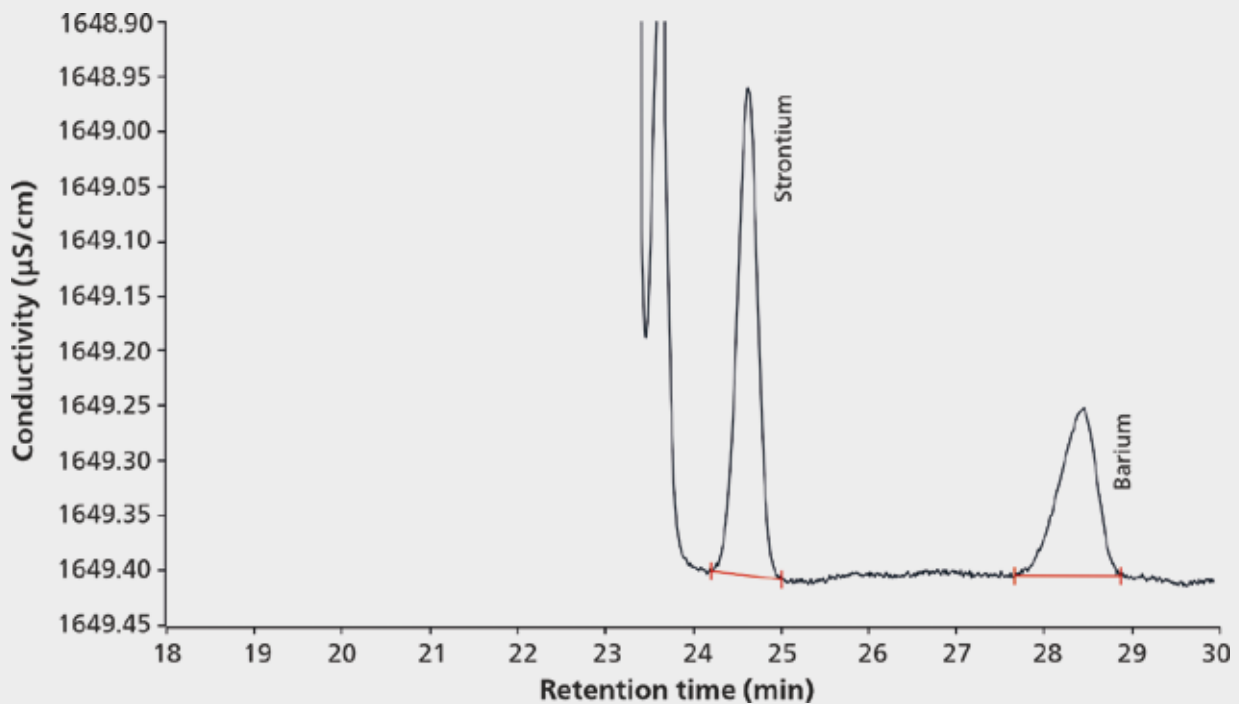


Metrosep Chel PCC 1 VHC/4.0 – selective preconcentration of multivalent cations

The Metrosep Chel PCC 1 VHC/4.0 preconcentration column is the perfect tool for the determination of trace levels of multivalent cations such as strontium and barium in high matrix solutions. The chelating functional groups allow the selective preconcentration of such ions. Thus, even in highly concentrated brines, trace amounts of strontium and barium

down to detection limits of 10 µg/L can be determined properly.

The complete analysis process including the preconcentration can be fully automated with the 2060 Ion Chromatograph, enabling a continuous (24/7) monitoring without any additional manual work.



Chromatogram of a brine sample (> 300 g/L NaCl) spiked with 60 µg/L strontium and barium. An aliquot of 4 mL sample was preconcentrated on the Metrosep Chel PCC 1 VHC/4.0 and then eluted on a Metrosep C 6 - 150/4.0 separation column. The strontium and barium peaks are well separated from the huge sodium matrix peak. Very low detection limits (10 µg/L) of multivalent cations in highly concentrated brines can be reached with this method.

ORDERING INFORMATION

6.01010.350 Metrosep Chel PCC 1 VHC/4.0

