

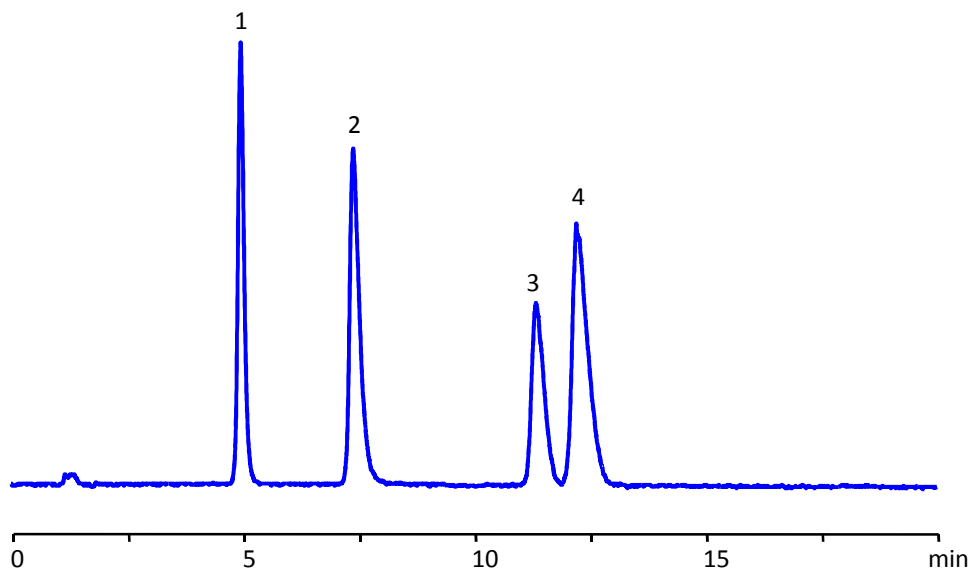
Cool Applications

"Making Tough LC Applications Look Cool"

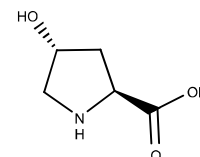
HPLC SEPARATION OF AMINO ACIDS IN PURE WATER

Column: Newcrom AH
Column size: 4.6 × 150 mm, 5 μm
Mobile phase: H₂O -100%
Detection: 205 nm
Flow rate: 1.0 ml/min

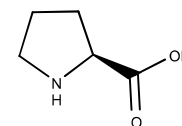
1. Hydroxyproline
2. Proline
3. Glycine
4. Alanine



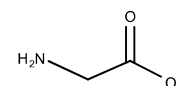
1. Hydroxyproline



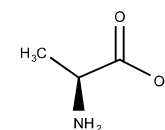
2. Proline



3. Glycine



4. Alanine



Application Comments

Is it possible to do ion chromatography without ions in the mobile phase?

Typically, ion chromatography requires ions in the mobile phase to generate the ion-exchange process. The stationary phase, ion-exchanger, would hold ionic analytes indefinitely if the mobile phase does not provide competitive ions in the form of a buffer or salt.

We are demonstrating in this application that our Newcrom AH mixed-mode stationary phase does not require any ionic additive in the mobile phase when the analytes are amino acids. Pure water is all that is needed to make efficient ion interaction based separation. This method would be invaluable in the applications where organic presence and inorganic ions are not acceptable in the mobile phase. Example of such an application is radiocarbon dating, which is an important method for building chronologies in archaeology. Amino acids, especially hydroxyproline, seem to be the most promising compounds used in carbon dating when isolated from bone collagen.

Using only water would allow for a direct coupling to MS and also allow low wavelength UV detection down to 200 nm, which can't be done if using a buffer based on organic acids.

Visit www.sielc.com to learn more about Newcrom AH columns.

See more information on radiocarbon dating in this publication (<https://onlinelibrary.wiley.com/doi/epdf/10.1002/rcm.8047>)