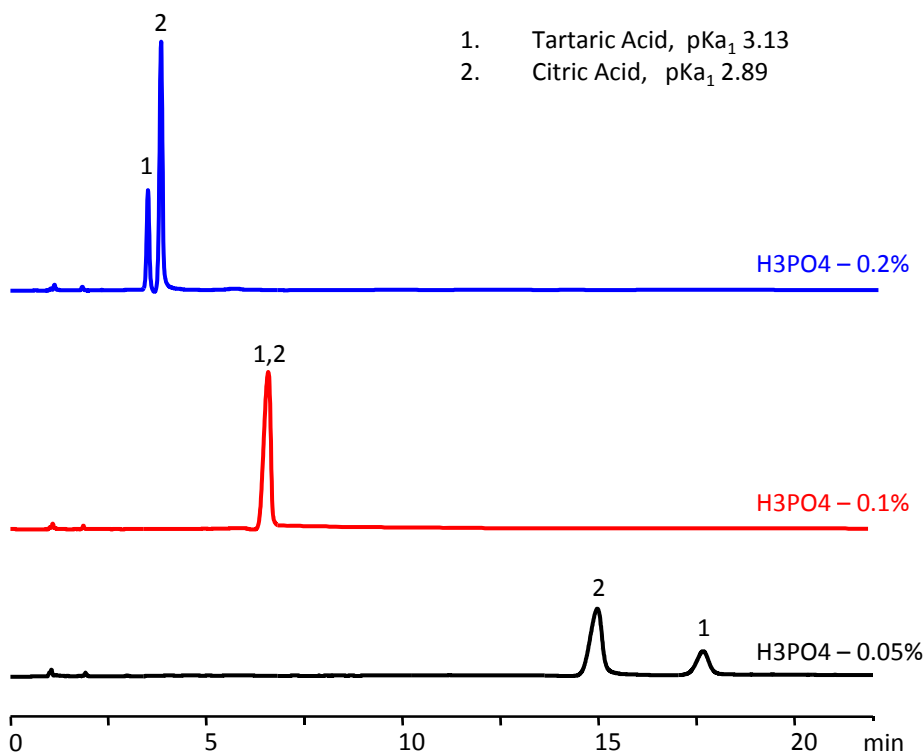


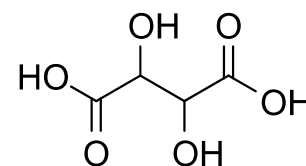
Cool Applications

"Making Tough LC Applications Look Cool"

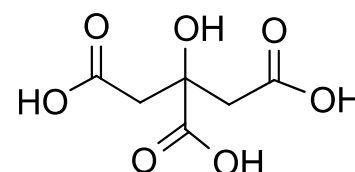
HPLC SEPARATION OF TARTARIC ACID AND CITRIC ACID



1. Tartaric acid



2. Citric acid



Column:	Newcrom BH
Column size:	4.6 × 150 mm, 3 μm
Mobile phase:	H ₂ O
Buffer:	H ₃ PO ₄
Detection:	UV 200 nm
Flow rate:	1.0 ml/min

Application Comments

When we do method development we occasionally see some interesting phenomena, which we can not explain by typical column behavior. One such example is HPLC separation of tartaric and citric acid on our Newcrom BH column. We are observing that their relative retention depends on buffer concentration. As result, tartaric acid can come out before or after citric acid in the aqueous mobile phase with changing of acid concentration only. In this particular case, phosphoric acid was used as an acidic buffer and to create the ion-exchange process.

The Newcrom BH column is a silica-based mixed-mode column with a ligand comprised of a long hydrophobic chain and terminal strong basic group. This phenomenon can not be explained by simple hydrophobic or ionic interaction. One possible explanation is the formation of intramolecular hydrogen bonding of different degrees depends on the concentration of the phosphoric acid in the mobile phase. This intramolecular interaction may change the ionization level of each molecule and change their relative retention.

We are not claiming we understand this phenomenon, but we feel it is worth sharing with you such an unusual effect. Visit www.sielc.com to learn more about Newcrom BH columns.