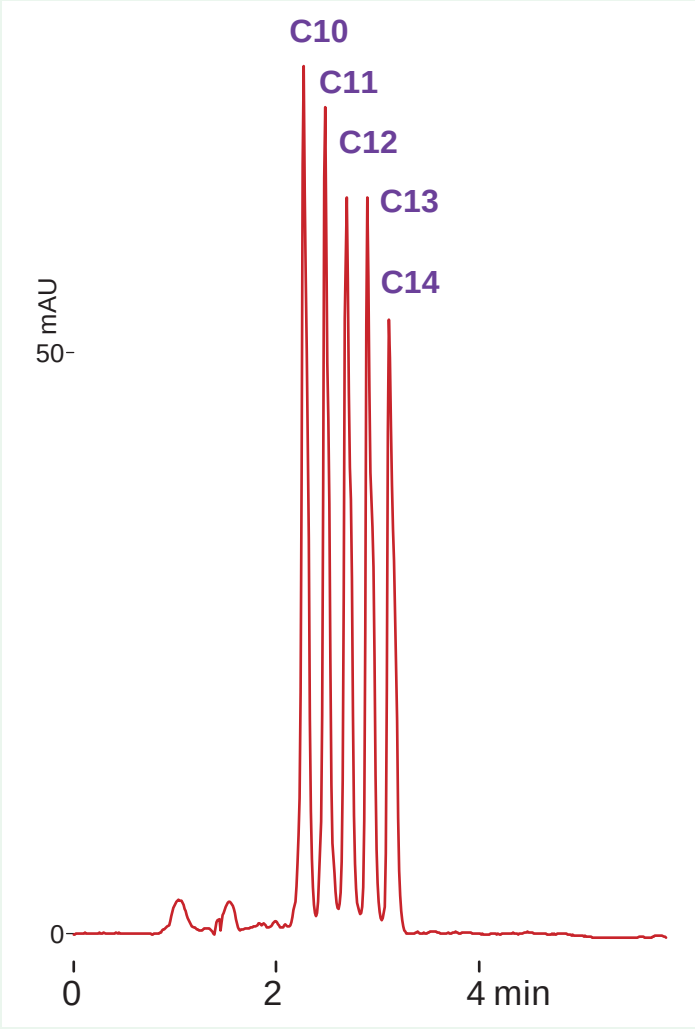
Unison UK-Phenyl 100 x 4.6 mm Technical

Separation of anion surfactants that do not recognize linear chain or multi-branch



Linear and branched alkylbenzenesulfonates (C10 - C14)

Unison UK-Phenyl
100 x 4.6 mm
A: 100mM $NaClO_4$
B: acetonitrile
45-90%B (0-5min)
1 mL/min, 37 deg.C
260 nm, 10uL

There are both linear chains (LAS) and multi-branch chains in alkyl benzene sulfonates, commonly used to synthesize surfactants. Take the case of separating alkyl benzene sulfonates using reversed-phase HPLC. With a conventional ODS column, separation of isobaric linear and multi-branch chains is possible due to a slight difference in polarity between the compounds (http://www.imtakt.com/TecInfo/TI300E.pdf).
However, it may also be necessary to make separations based solely on the number of carbon atoms (i.e. not resolve the structural isomers). This can be difficult to do with ODS phase

Per the above chromatogram, using a phenyl stationary phase (Unison UK-Phenyl) makes it possible to separate compounds based solely on the number of carbon atoms because it does not recognize structural isomers (e.g. linear and multi-branch chains). Moreover, it can quickly recognize the difference in alkyl chain lengths with a short column by using a 3um particle diameter high-resolution column.
This is one example of the low molecular recognition of alkyl structural isomers by the Phenyl's stationary phase.