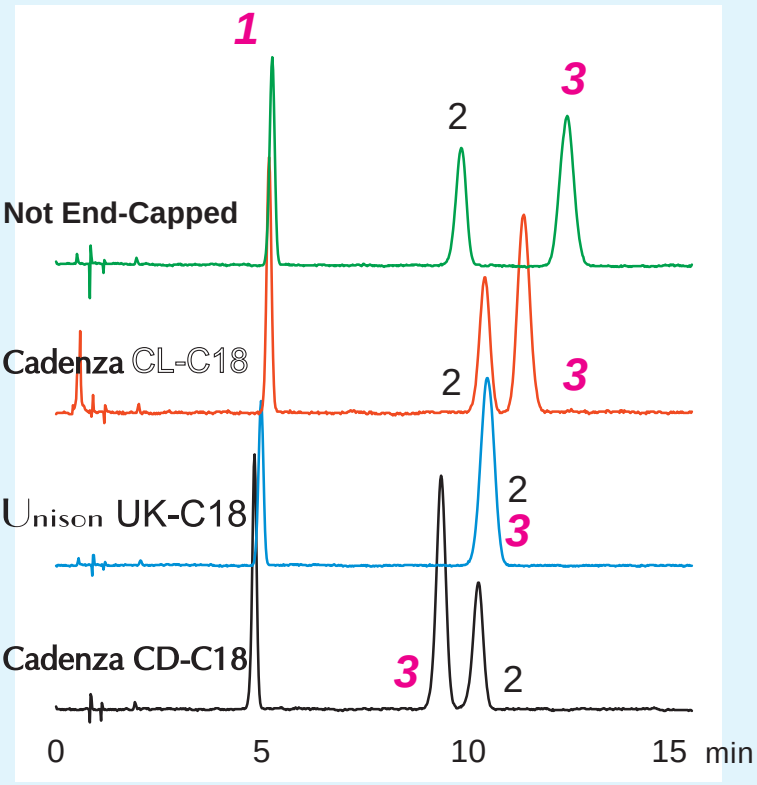
Cadenza CL-C18
Unison UK-C18
Cadenza CD-C18

75 x 4.6 mm

Technical

Pi-dipole interaction on CL-C18



1 CH_2OH benzylalchol

2 CH_3, CH_3 $CHCHCNHCNH_2$, Br, O, O bromovalerylurea

3 $C{-}NH_2$, O, OCH_2CH_3 *o*-ethoxybenzamide (ethenzamide)

75 x 4.6 mm, water /MeOH = 70 /30, 1 mL/min, 37 deg.C, 260 nm

In addition to hydrophobic interaction, several secondary interactions occur within an ODS column. For example, silanols or siloxanes from the surface of silica can also interact with certain analytes (electrostatic interaction). Many compounds are affected by this secondary interaction.

In the figure above, retention for peak 2 (bromovalerylurea) is similar on all 4 ODS phases - even though this compound contains amide pi electrons. However, peak 3 (ethenzamide), which has cyclic conjugated pi bonds (benzene structure), shows different retention on the different ODS phases. Ethenzamide is retained least on CD-C18, then more on UK-C18 (siloxane interaction), and more on CL-C18 (interaction with the low amount of residual silanols). Ethenzamide has the largest retention on not end-capped ODS (which contains a lot of silanols). This means that pi ring structure of ethenzamide may interact with dipole moment of siloxane or silanol of stationary phase. The stronger dipole moment of silanols may cause the ethenzamide to have more retention on CL-C18 than UK-C18 and CD-C18.

CL-C18, CD-C18, and UK-C18 can offer different selectivities for aromatic compounds.
Scientists can use these ODS phases to solve difficult separation issues.