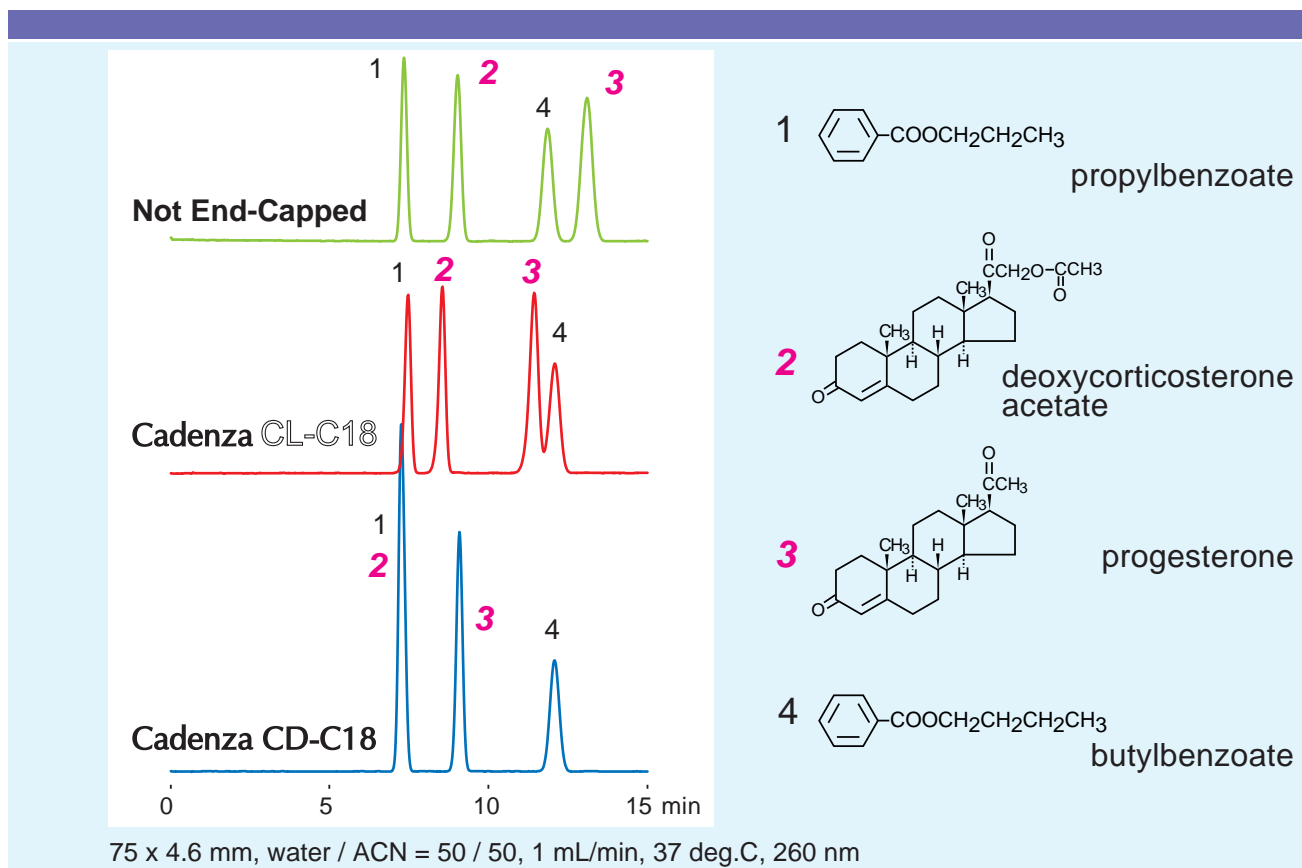


Cadenza CL-C18  
Cadenza CD-C18

75 x 4.6 mm

Technical

## Separation properties for neutral compounds on CL-C18



There are several interactions between analyte and stationary phase occurring in an ODS column. The main interaction is hydrophobic interaction. Silanol (SiOH) and siloxane (SiOSi), located on the surface of the silica material, is the source of secondary (electrostatic) interaction.

Neutral compounds that are rich in oxygen atoms can have more secondary (electrostatic) interactions with stationary phase than neutral compounds that lack these structures. In the figure above, the steroid compounds (peaks 2 and 3) show more retention on not end-capped ODS phase than fully endcapped ODS phase (CD-C18). The two steroid compounds have multiple keto groups, which are polar functional groups that have strong electrostatic interactions with the silica surface. On the other hand, peaks 1 and 4 contain an ester group, and there seems to be little secondary interaction with the silica surface (retention time for peaks 1 and 4 is similar on all 3 ODS phases). Hydrophobic interaction with the alkyl chain seems to be the main interaction for peaks 1 and 4.

When molecular structures contain oxygen rich functional groups, different selectivity can be obtained on different ODS phases. The neutral compounds with oxygen rich structures had improved separation on CL-C18 due to silanol effect.

CL-C18 has an advantage of different selectivity for neutral compounds (including polar atoms) due to electrostatic interactions. Separation possibilities can be expanded by using both CL-C18 and CD-C18 - the same ODS phase but different interactions on the silica surface.