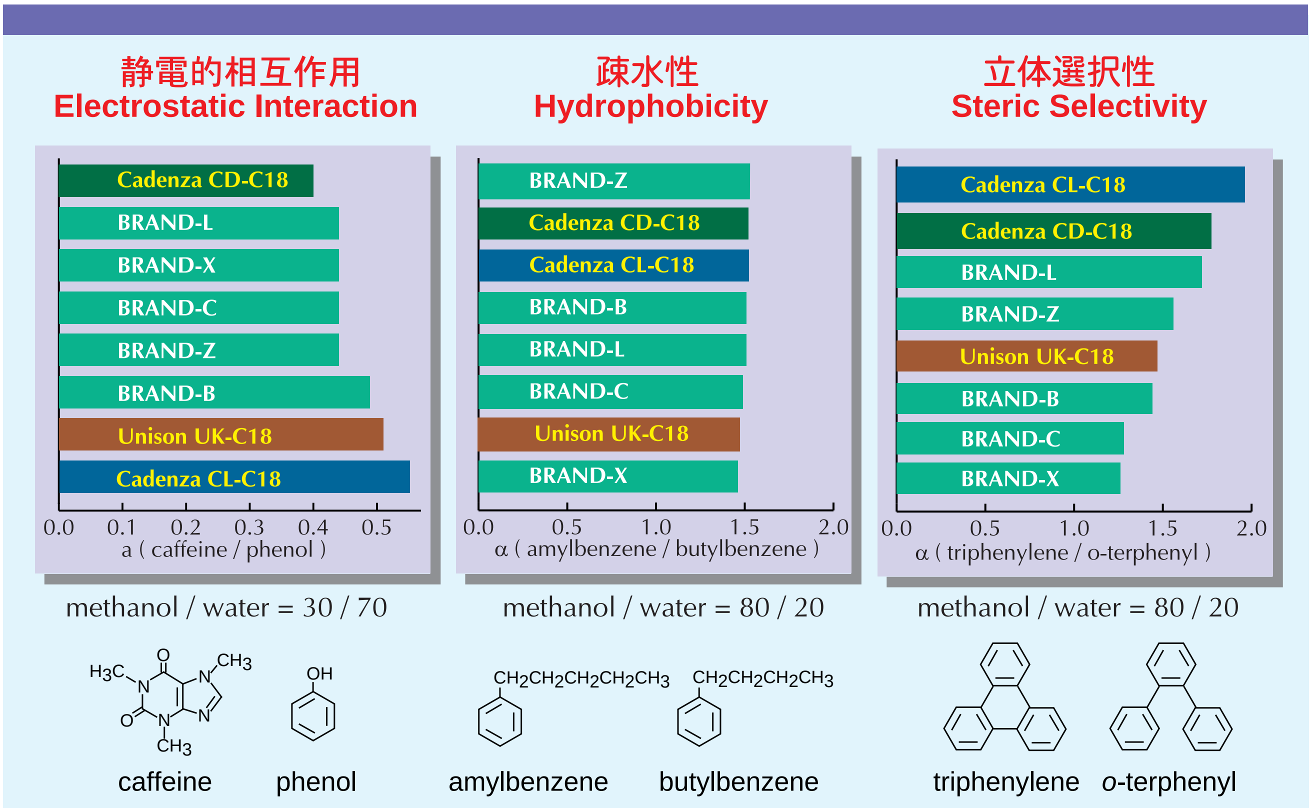
Cadenza CL-C18
Cadenza CD-C18
Unison UK-C18

Technical

Basic interaction of CL-C18, CD-C18 and UK-C18



Ref) N.Tanaka *et.al.*, J. Chromatg. Sci., 27, 721 (1989)

CL-C18 design concept is to have an optimal amount of residual silanols and to offer different selectivity than conventional ODS columns. The figure above shows that each of Imtakt's ODS phases provide different molecular interactions.

■ Hydrophobicity

The most basic interaction, hydrophobicity, is similar among ODS columns tested.

■ Electrostatic Interaction

Electrostatic interaction is derived from polar groups on the silica surface (e.g. silanol and siloxane). CD-C18 is designed to minimize this electrostatic interaction (hydrogen bonding interaction) by maximizing the polymeric end-capping process. On the other hand, CL-C18 uses "controlled end-capping" technology in order to have an optimal amount of residual silanols (providing large electrostatic interaction). UK-C18 is fully end-capped but slightly lower ODS density in order to be compatible in 100% aqueous eluent. The figure above prove that silanols (CL-C18) provide more electrostatic interaction than accessible siloxane (UK-C18).

■ Steric Selectivity

Steric selectivity is the ability of the stationary phase to differentiate between compounds based on steric structure. ODS phases that show large steric selectivity also have high ODS densities. Both CL-C18 and CD-C18 have the same ODS density; both utilize the same silica and ODS substitution method during the manufacturing process. However, larger values for steric selectivity are observed on CL-C18 than CD-C18. This is likely due to the residual silanols on CL-C18 interacting with the pi-electrons on triphenylne - resulting in pi-dipole interaction.