A column packed with core shell particles has been widely used on HPLC and UHPLC because it showed not only excellent column efficiency but also lower back pressure than sub-2 μm column. More than 20 kinds of core shell columns are available in the market. Recently high stability under a basic pH condition has been requested for a core shell reverse- phase as well as a fully porous C18. In this study, dense end-capping using a difunctional silyl-reagent was evaluated as an encapsulated type end-capping.

**Novel Silyl-Reagents**

- C18 reagent B
- C18 reagent C

**Bonding on Silica**

- Bonding on silica: Reflux in toluene
- Mixture of reagent A and B: A:B=1:1
- Mixture of reagent A and C: A: C=2:1

**Stability Evaluation of Core Shell C18 with Encapsulated Type End-Capping**

**Conclusion**

* The novel C18 with encapsulated type end-capping showed almost same stability under basic pH conditions to compare with a hybrid type C18.
* The novel C18 with encapsulated type end-capping showed a good peak shape for a metal chelating compound, acidic compounds and basic compounds although the other hybrid type C18 showed a poor peak shape for formic acid.
* It was guessed that an amine remained on the silica surface like a by-product of a silyl-reagent leaded a poor peak shape for formic acid.