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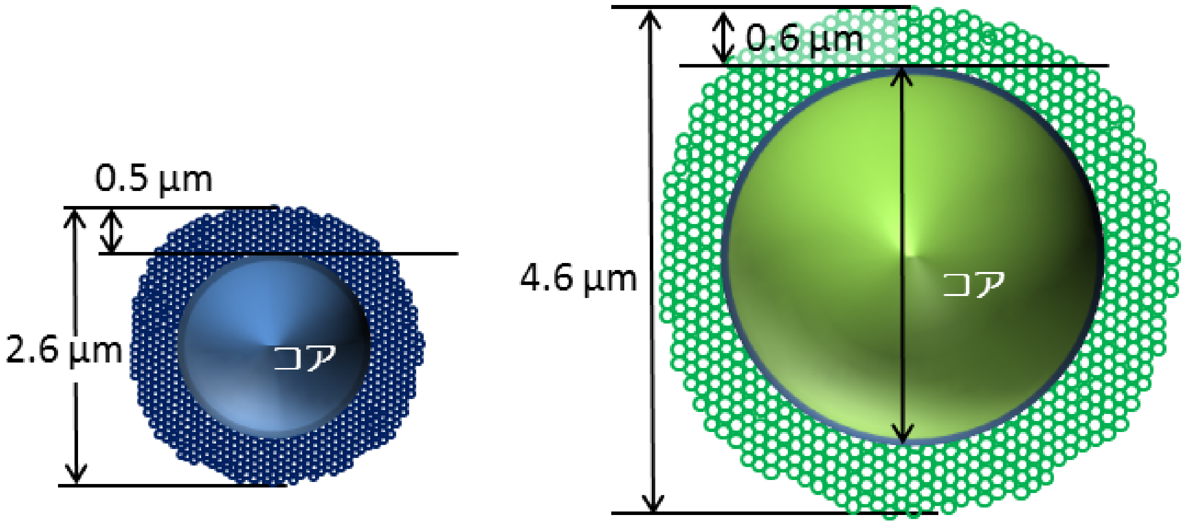
What is CoreShell?

A **core shell particle** consists of a non-porous core in the center and a porous layer outside of the core.

A core-shell structure makes theoretical plate increase 50%, so that a 2.6 µm core shell particle column shows the same theoretical plate as a 1.8 µm totally porous particle column.

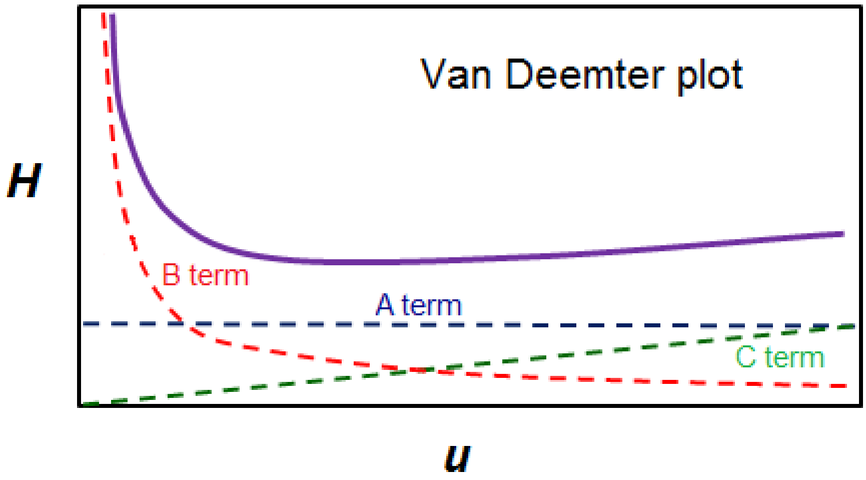


Schematic view of a core-shell silica

Why core-shell particles, the better performance?

Van Deemter

$$H = Ad_p + B\frac{D_m}{u} + C\frac{d_p^2}{D_m}u$$



A term
Eddy diffusion (d_p is particle diameter)
B term
Longitudinal diffusion (D_m is diffusion coefficient)
C term
Mass transfer

H(height equivalent of one theoretical plate) represents the column length per one theoretical plate. The lower the H, the higher the performance.

Van Deemter plot is a curve using the value derived from the above equation as a function of the theoretical plate height and **u** (mobile phase linear velocity). Van Deemter Equation contributes A, B and C term individually.

A core-shell particles can be reduced all the values of these three terms.

- Reason why the A term reduces
- Reason why the B term reduces
- Reason why the C term reduces

SunShell series is here using the core-shell particles!

SunShell series (./SunShell_en.html)

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