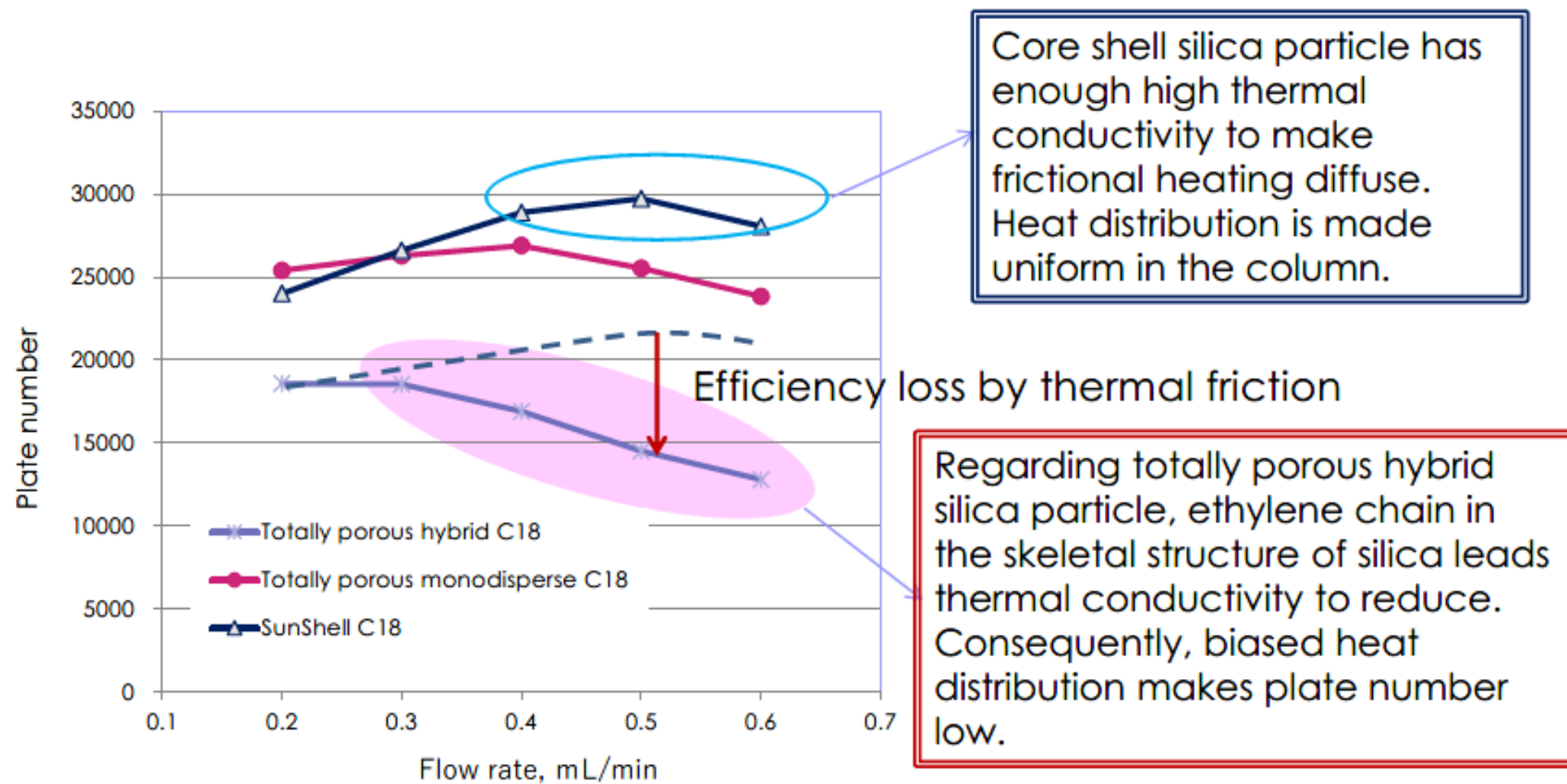


Efficiency loss by thermal friction*



Column: 100 x 2.1 mm
 Mobile phase: CH₃CN/H₂O=60/40
 Temperature: 40 °C
 Sample: Acenaphthene,

*Fabrice Griffl, Georges Guiochon, *J. Chromatogr. A* 1217 (2010) 5069.

A part of abstract
 This unexpected result is accounted for by the three times smaller heat conductivity of the BEH bed (BEH 0.25 W/m/K) than that of the Kinetex bed (Kinetex 0.75 W/m/K).

Regarding hybrid silica C18 columns, it shows a large efficiency loss from thermal friction. A 100 mm length column shows more than 50 MPa, so that the effect of frictional heat is larger compared to that with a 50 mm length column.

Some scientists wrote papers regarding efficiency loss by thermal friction. Totally porous hybrid silica showed the highest plate number at a low flow rate of 0.2 ml/min because of efficiency loss by thermal friction at a high flow rate. Totally porous silica particle catches influence of thermal friction less than totally porous hybrid silica particle.