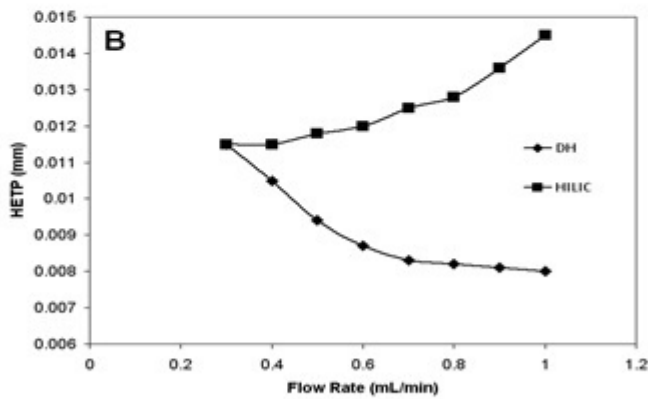
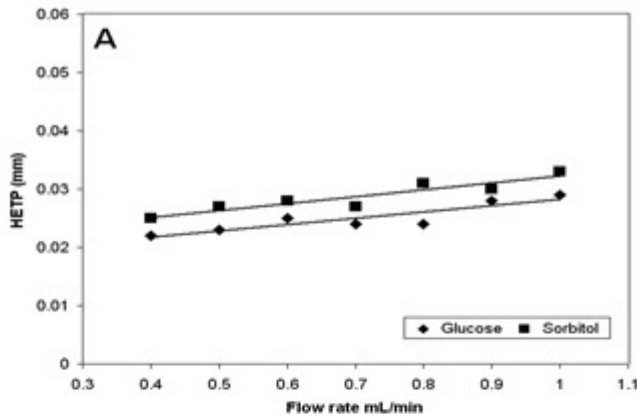


---

## How does efficiency in ANP compare to HILIC?

**Aqueous Normal Phase** (ANP) is a distinctly different retention mode than Hydrophilic Interaction Liquid Chromatography (HILIC). In HILIC, evidence has shown that retention is achieved by partitioning in and out of a water layer surrounding the stationary phase surface. With a much less polar surface, **TYPE-C Silica** columns do not exhibit this same partitioning retention behavior. Speculated local solvent displacement in ANP retention is likely to lead to faster mass transfer than partitioning in and out of a water layer. The figure below illustrates the difference in efficiency (Height Equivalent of a Theoretical Plate, HETP) between an ANP column and a HILIC column. The significant difference in van Deemter plots suggests that the two mechanisms are very different.

See also: [What are the main differences between ANP and HILIC?](#)



Plots of HETP versus flow rate. (A) Glucose and sorbitol on DH column (2.1 x 150 mm, particle size 4  $\mu$ m) in a 80:20 ACN/DI water + 0.1% formic acid mobile phase. (B) Comparison of commercial HILIC (4.6 x 150 mm, particle size 3.5  $\mu$ m) and DH (4.6 x 150 mm, particle size 4.0  $\mu$ m) columns for ANP retention of uracil. Mobile phase same as A.

