PEPTIDE CSH C_{18}, 130Å COLUMNS

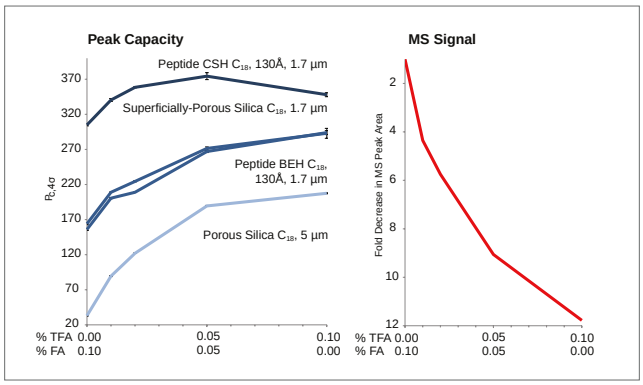
Charged Surface Hybrid Particles Deliver Superior Peptide Separations in LC and LC-MS Applications

Waters patented synthesis process for its Charged Surface Hybrid (CSH) Technology particles imparts a low-level, positive charge to the surface of each particle. For that reason, when using our Peptide CSH C_{18}, 130Å Columns, you must ensure a mobile-phase pH of less than 5, to enable peptide/CSH surface-charge interactions. CSH Technology allows the columns to be successfully used with standard eluents containing trifluoroacetic acid or a weaker acid modifier, such as formic acid. You no longer need to compromise between selecting a reversed-phase eluent that delivers sharp, symmetrically separated peaks (e.g., 0.1% trifluoroacetic acid) and one that minimizes reduction of MS signal (e.g., 0.1% formic acid). Additionally, the ability of the CSH C_{18}, 130Å column chemistry to accept greater peptide mass loads than many other columns enhances the ability to detect potentially important low-level constituents of the major component, or components, of interest.

Superior Performance in Eluents Containing Formic Acid or Trifluoroacetic Acid

Waters Peptide CSH C_{18}, 130Å particles contain a low and carefully-defined concentration of positive charges that yield comparatively excellent peak shape for peptide separations that rely on mobile phases that contain formic acid or trifluoroacetic acid . The fact that the performance of a Peptide CSH C_{18}, 130Å Column exhibits little dependence on strong ion-pairing agents makes it ideal for LC or LC-MS applications.

Comparative Averaged Peptide Peak Capacities on Selected Reversed-Phase Columns with Differing Concentrations of Formic Acid and Trifluoroacetic Acid

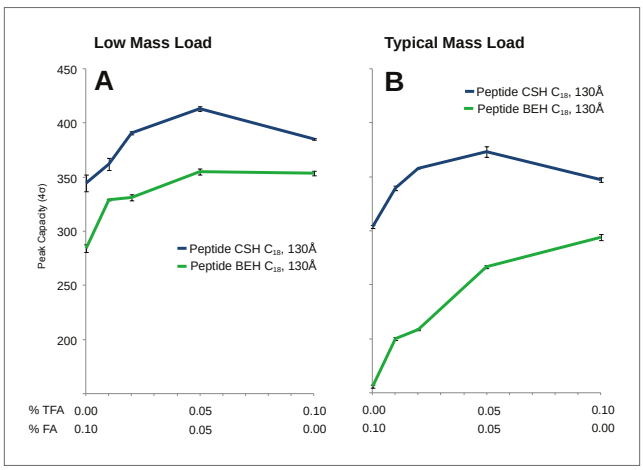


Effect of trifluoroacetic acid on peak capacity and MS signal. (A) Peak capacity as a function of acid modifier. Values were derived from two replicates. (B) Fold decrease in MS peak area as a function of acid modifier. Waters MassPREP Peptide Standard Mixture (p/n: 186002337) was used in study.

Excellent Mass Loading of Complex Peptide Samples

One of the inherent performance advantages of our CSH Technology is improved sample-mass loadability, the quantity of analyte that you can load onto a column before peak shape deteriorates. At typical mass loads, Peptide CSH C_{18}, 130Å delivers a remarkably better performance than many existing C_{18} offerings. When loading 10× less sample, the difference in performance was less pronounced. Improved peptide-mass loadability is an excellent column asset for challenging separations, particularly for those that involve mixtures that comprise species present at vastly different concentrations.

Comparative Averaged Peptide Peak Capacities on Peptide CSH C_{18}, 130Å vs. Peptide BEH C_{18}, 130Å Based Columns (2.1 × 150 mm) at Two Peptide Mass Loads and Differing Concentrations of Formic Acid and Trifluoroacetic Acid



Effect of column mass load on separated peptide peak capacity in formic acid, trifluoroacetic acid, and eluent blends of formic acid and trifluoroacetic acid. (A) approximate sample load of 0.06 µg peptide mixture. (B) approx. 0.6 µg peptide mixture. Values were derived from two replicates. Waters MassPREP Peptide Standard Mixture (p/n: 186002337) was used in the study.

A need persists for columns compatible with LC instrumentation. We recommend the use of low-dispersion LC instrumentation to extract full performance from a well-packed column containing 1.7 µm particles. The recent introduction of Waters e***X***tended ***P***erformance (***XP***) Columns packed with 2.5 µm ***XP*** particles improves the productivity of existing HPLC instrumentation. You can scale high peak capacity peptide separations performed using a Peptide CSH C_{18}, 130Å, 1.7 µm Column to a Peptide CSH C_{18}, 130Å, 2.5 µm ***XP*** Column simply by altering flow rate and gradient time. As shown below, you can readily employ CSH Technology for high peak capacity peptide separations using either HPLC, UHPLC, or UPLC instrumentation.