

BioAdvantage Basic A Uniquely Shielded Surface

Phases	C8 and C18
Particle Sizes	3, 4.5 and 10 μ m
Pore Size	120 \AA
Pore Volume	0.8mL/gm
Surface Area	330m ² /gm
Carbon%(w/w)	C18 = 18%
Phase type	Monofunctional with a unique polar, bulky end-capping
Silica Class	Type B

Applications

BIOADVANTAGE BASIC columns and cartridges are ideal for applications requiring an absence of secondary solute-silanol inter-action. Basic and acidic drugs and peptides can be chromatographed efficiently with little or no buffer. BioAdvantage Basic columns are particularly well suited for LC/MS applications where acetic acid or formic acid can be substituted for TFA resulting in significant increase in signal. While TFA is not required, it does not preclude its use on BIOADVANTAGE BASIC columns. BIOADVANTAGE BASIC exhibits extremely fast equilibration kinetics from high to low organic phase compositions. It works well in 100% aqueous conditions for hydrophilic applications also.

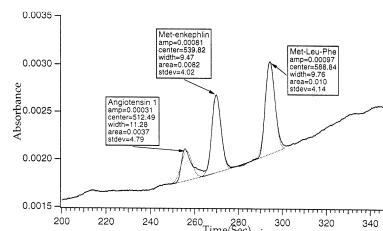
Peptide Mapping without TFA

The following chromatograms illustrate the differences in selectivity for peptide maps of cytochrome-C when using 0.05% TFA or 0.05% acetic acid buffer in 1%/min acetonitrile gradient on a short 50x1.0mm BioAdvantage Basic C18 column. Both dilute buffer examples are characterized by sharp peaks and no tailing.

LC-MS without TFA

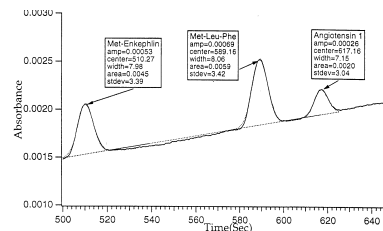
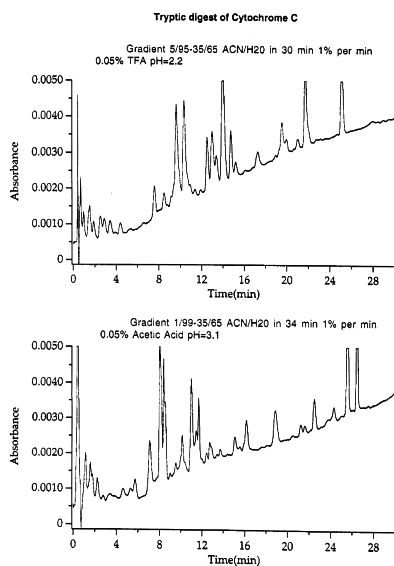
Researchers have shown that BioAdvantage Basic C8 and C18 phases have an extremely well protected silanol surface. An acetonitrile/water 1%/min gradients with as little as 0.05% acetic acid gives a very satisfactory peptide map on a short 5cm x 1mm BioAdvantage Basic C18 column. The ability to buffer with acetic or formic acid rather than TFA greatly enhances signals for LC/MS techniques.

While BioAdvantage Basic columns give exceptional performance without TFA buffer. In fact, the changes in selectivity that come with changing buffer acids can be a



with 0.1% Acetic Acid pH 3.1
BioAdvantage Basic C18 5 μ m 50x1.0mm

powerful tool for separation optimization. Notice how the peptide elution orders change between the acetic acid (above) and TFA (below) buffered chromatogram. This is due to the differences in pH of the acetic acid and TFA mobile phase.



with 0.1% TFA pH 2.2
BioAdvantage Basic C18 5 μ m 50x1.0mm

BioAdvantage BHS The Next Generation of BioAdvantage Basic

BioAdvantage Basic High Surface Phases	Ultra High Density End Capping C18
Particle Sizes	3, 4.5, 10 μ m
Pore Size	100Å
Pore Volume	1.1mL/gm
Surface Area	430m ² /gm
% Carbon (w/w)	C18 = 18%
Phase type	Monofunctional & fully endcapped
Silica Class	Type B

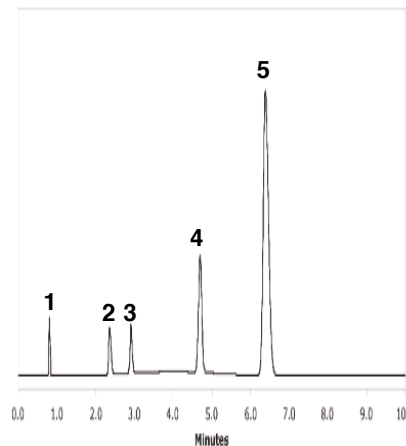
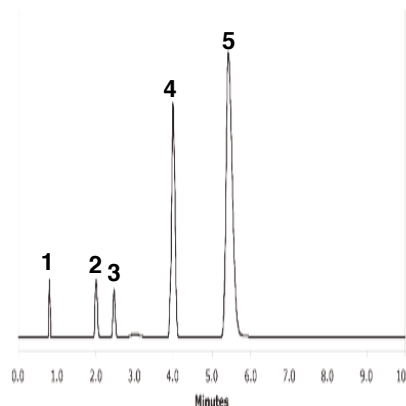
With 1/3 higher surface area, BioAdvantage BHS HPLC columns facilitate the development of robust assays for challenging analytes.

Unique Features:

- Ideal for Basic and Acidic Analytes
- Wide pH Range Stability
- High Capacity
- No secondary Si-OH interaction
- No metal contamination
- Extreme hydrophobicity range

Standard Sizes:

- Special products for LC-MS
- 0.075 - 20mm I.D. range
- Wide range of HPLC Cartridge and Column types
- PEEK/titanium and stainless steel formats



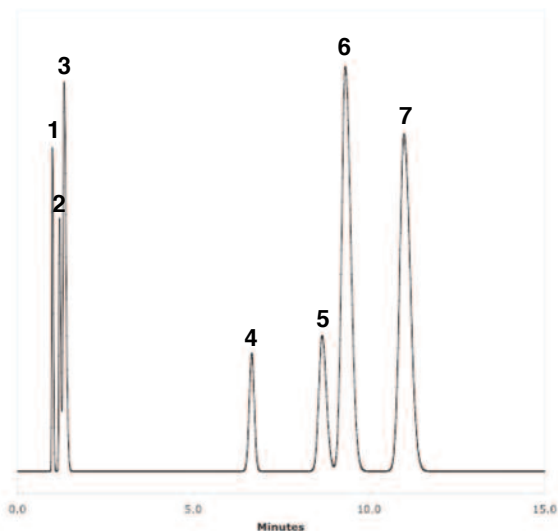
NIST Test Mix for Metal Activity and Residual Silanols

Quinizarin, a strong metal chelator, and amitriptyline, a very sensitive solute for residual silanols, both elute with good recovery and symmetrical peaks on both BioAdvantage Basic and BioAdvantage BHS C18 columns.

BioAdvantage Basic C18, 150x4.6mm
P/N: BA400-046150

BioAdvantage BHS C18, 150x4.6mm,
P/N: BA420-046150

(1) Uracil, (2) Toluene, (3) Ethylbenzene,
(4) Quinizarin, (5) Amitriptyline.
80% MeOH/buffer, 1.5mL/min



High Selectivity

Wide range of solutes resolve quickly on a short HPLC column

BioAdvantage BHS C18, 100x4.6mm,
P/N: BA420-046100

(1) Uracil, (2) Caffeine, (3) Phenol, (4) n-Butylbenzene,
(5) o-Terphenyl, (6) n-Amylbenzene, (7) Triphenylene
80% MeOH/water, 1mL/min

BioAdvantage Pro200 & 300

More Selectivity and Resolution for Peptides

Phases	C4 and C18
Particle Sizes	4.5 and 10 μ m
Pore Size	200Å & 300Å
Pore Volume	1.1 & 0.9mL/gm
Surface Area	200 & 100m ² /gm
%Carbon (w/w)	200Å C4 = 4.5%, C18= 14% 300Å C4 = 3%, C18 = 8%
Phase type	Monofunctional & fully endcapped
Silica Class	Type B

Now, more than ever before, you have the ability to select a wider range of hydrophobicity with identical selectivity and pH operating range (1.5-10) for the most challenging applications.

Separate the more hydrophobic peptides with superior resolution. BioAdvantage Pro200 can be run without TFA for better detection with LC-MS.

300Å wide pore HPLC columns are traditionally used for biomolecule analysis since the molecular radii of large peptides and proteins are better matched than with smaller pore size columns (80 - 120Å) typically used for small molecule analysis. 300Å sorbents, however, have reduced surface area, thus less capacity and selectivity than would be had with smaller pore size materials.

The new BioAdvantage Pro200 presents a powerful alternative for the analysis of peptides of ~19kD and less

Phosphopeptide Analysis

BioAdvantage Pro 200 & 300 analytical columns are available in sizes from:

0.075 x 30 mm to 4.6 x 250mm

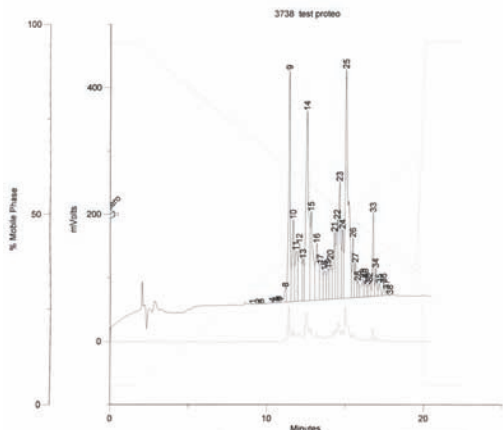
and preparative columns range from:

10 & 20 x 30mm to 10 & 20 x 250mm

Prices range from \$175 to \$2,560.

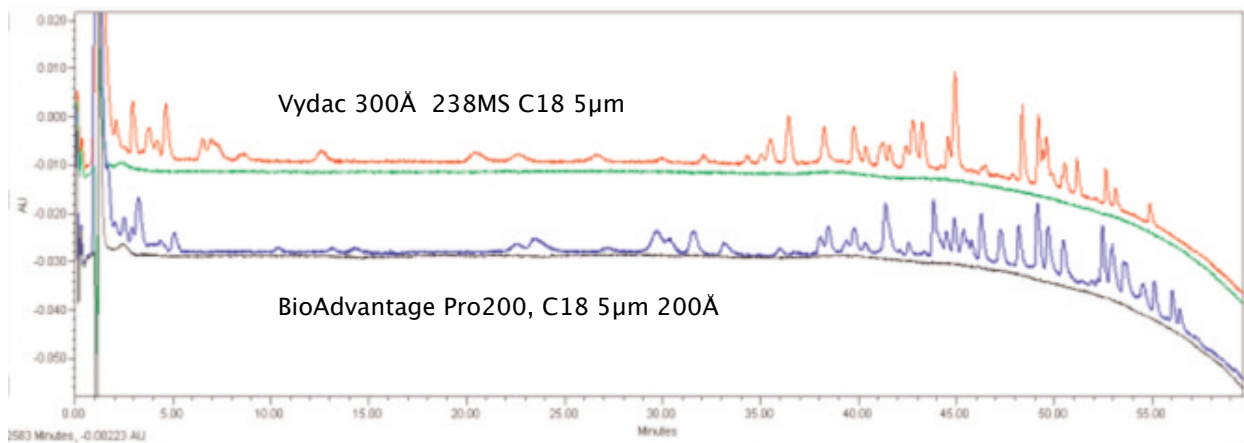
10 μ m materials are also available to reduce the cost of your column.

Call for information on the column configuration you need.



Continued >>>>

BioAdvantage Pro™ 200 C18 provides greater selectivity than the popular 300Å



Tryptic Digest of Carbamidomethylated BSA (16h, 20 pMols on column).

Column Size: 150 x 1.0mm

Column Brand: Upper Chromatogram: Vydac 300Å 238MS C18 5µm

Lower Chromatogram: BioAdvantage Pro200, C18 5µm 200Å

Conditions: A = 0.1% formic acid containing 0.01% TFA

B = 0.085% formic acid in CH₃CN containing 0.01% TFA

Initial 5 min isocratic hold at 5% B, then 60 min hyperbolic gradient to 65%B

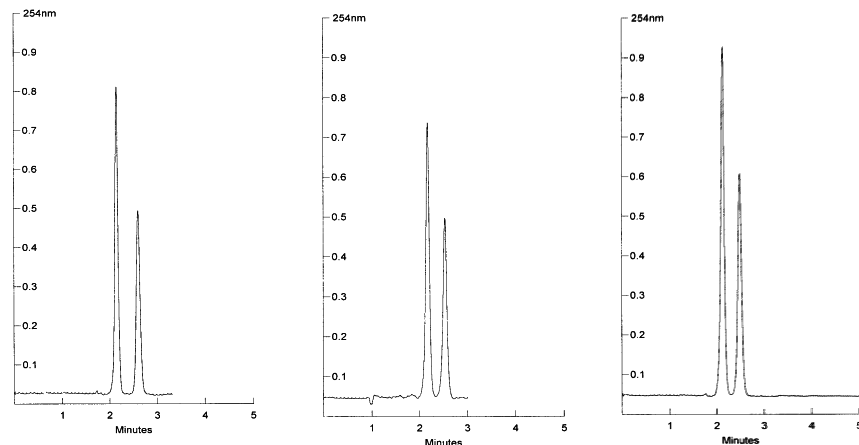
Flow 0.15 ml/min, Green & Black curves: Blank gradient profile

Superb Stability in Strong Base

Low pH operating conditions and high pH column washing conditions severely limit the lifetime and performance of widepore columns typically used for protein and peptide analysis. BioAdvantagePro 300 columns have high capacity for enhanced resolution and are robust enough to withstand prolonged use at extreme pH (1.5-10)

See the chromatograms below: Chromatogram One was run under neutral conditions (70%MeCN/H₂O) over an 18 hr. period. Chromatogram Two was run after exposing the column to 70% MeCN/0.5N NaOH at 1/ml/min for one hour at 23°C. Chromatogram Three was a repeat of One after equilibrating the column in the original mobile phase. The compounds are dimethylphthalate and fluorene.

It is never advisable to run strong base over a silica based column for an extended time.



BioAdvantage Guard Cartridge System

- Screws directly into the end of any standard analytical column.
- Are a direct replacement for NewGuard cartridges
- The BioAdvantage holder accepts NewGuard cartridges.
- They are available in C18, C8, C4, CN, Phenyl & Silica chemistries

Part Number: BA011 \$160 (One time purchase)

Examples of available Cartridges are:

Part Number: BA400-3G BioAdvantage Basic, C18 Guard Cartridge, 5 μm , 120Å,
3.2 x 20 mm, Pk/5 \$160

Part Number: BA100-3G BioAdvantage 100, C18 Guard Cartridge, 5 μm , 100Å,
3.2 x 20 mm, Pk/5 \$160

