



TARGA A Uniquely Shielded Surface

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

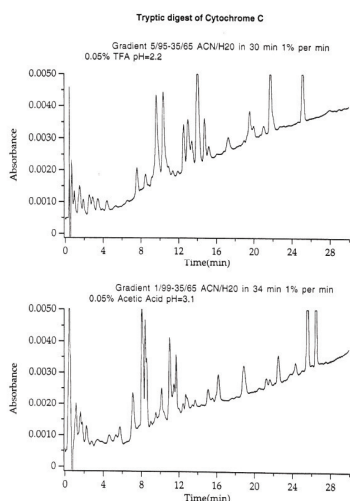
Guide to TARGA Part Numbers

Tx-xxxx-C183 Targa C18 3µm
 Tx-xxxx-C185 Targa C18 5µm

See Page 23 for complete Part Number information

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



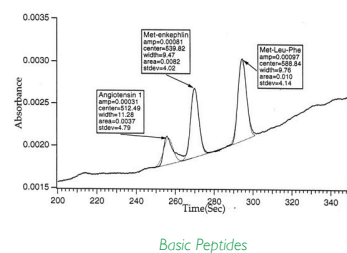
1%/min acetonitrile gradient on a short 50x1.0mm TARGA C18 column. Both dilute buffer examples are characterized by sharp peaks and no tailing.

LC-MS without TFA

Researchers have shown that Higgins Analytical's TARGA 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 TARGA C18 column. The ability to buffer with acetic or formic acid rather than TFA greatly enhances signals for LC/MS techniques.

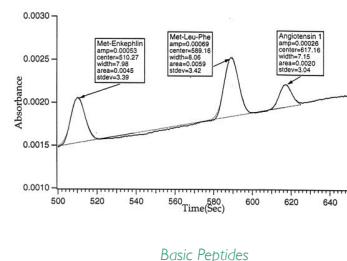


While TARGA columns give exceptional performance without TFA buffer, it does not mean that you are precluded from using it. In fact, the changes in selectivity



Basic Peptides
 with 0.1% Acetic Acid pH 3.1
 TARGA C18 5µm 50x1.0mm

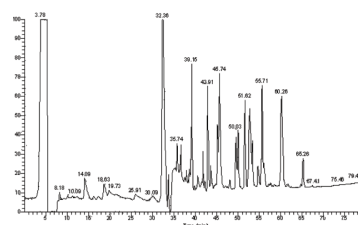
that comes with changing buffer acids can be a powerful tool for separation optimization. Notice how the peptide elution orders change between the acetic acid (above) and TFA (below) buffered chromatogram. This is due to the differences in pH of the acetic acid and TFA mobile phase.



Basic Peptides
 with 0.1% TFA pH 2.2
 TARGA C18 5µm 50x1.0mm

Applications

TARGA columns and cartridges are ideal for applications requiring an absence of secondary solute-silanol interaction. Basic and acidic drugs and peptides can be chromatographed efficiently with little or no buffer. Targa 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 TARGA columns. TARGA exhibits extremely fast equilibration kinetics from high to low organic phase compositions. It works well in 100% aqueous conditions for hydrophilic applications also.

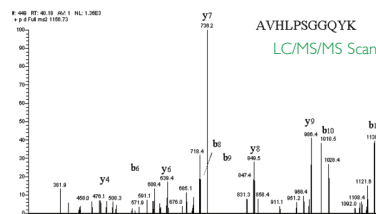
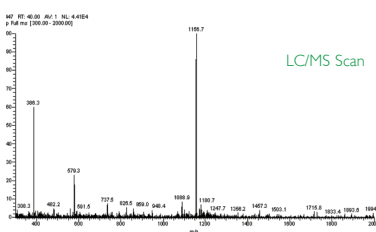


Tryptic Map of Human Ocular Lens Proteins
 beta A1 crystallin and gamma S crystallin

TARGA C18 5µm 150x0.5mm
 P/N TS-15M5-C185

Solvent A: 0.1% Acetic Acid
 Solvent B: 0.1% Acetic Acid, 65% MeCN
 0 - 50% B in 60min, 50 - 100%B in 15min

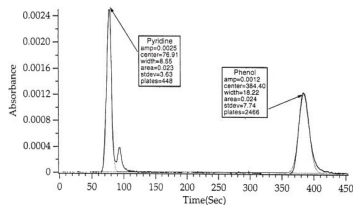
Sample is a tryptic digest of a 2D electrophoresis separated spot digested from PDVF membrane. The two ocular proteins are ~25kD. The LC/MS zoom scan below confirms the peak at 39.15min is singly charged, and software interpretation of the MS/MS scan at the bottom confirms the 1156.6 ion as residues 84-94 in human gamma S crystallin.



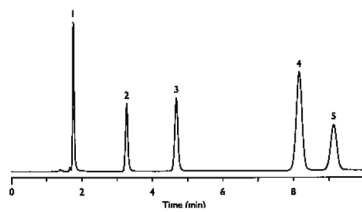
Unrivaled End Capping Technology Efforts to eliminate solute-silanol

Targa HPLC columns are true to the Latin root of their name. TARGA, meaning "shield," is precisely the effect the unique bonded phase has on the silica's silanol surface.

Many HPLC column manufacturers illustrate the performance of their columns packed with inert, base deactivated, "Type B silica" bonded phases by the chromatographic behavior of polar compounds such as pyridine. Performance claims can be misleading, however, when mobile phases are buffered to low pH or when they contain high percentages of organic solvent.

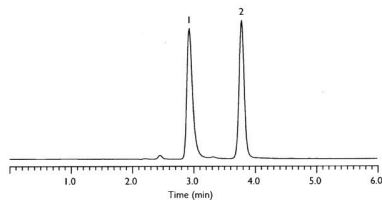


Unbuffered 20% MeCN/water



Analgesics and Anti-Inflammatories

TARGA C18 5µm 150x4.6mm
Part Number TS-1546-C185
45% MeCN/20mM NaH₂PO₄ pH3.2 1mL/min 260nm
1. Acetaminophen 2. Indoprofen
3. Naproxan 4. Indomethacin
5. Ibuprofen

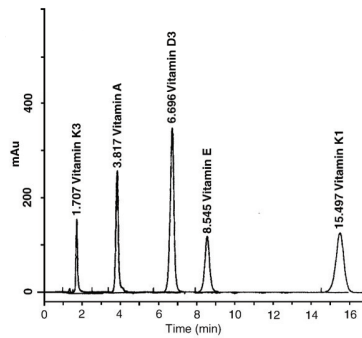


Anti-Hypertensives

TARGA C18 5µm 150x4.6mm
Part Number TS-1546-C185
25% MeCN/20mM NaH₂PO₄ pH3.2 1mL/min 260nm
1. Triamterene 2. Hydrochlorothiazide

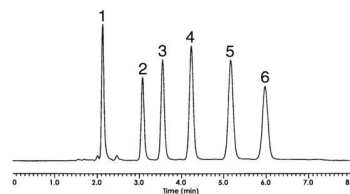
Favorable Kinetics at Aqueous or Organic Mobile Phase Extremes

The bulky moiety used for end capping TARGA C8 and C18 sorbents present other valuable selectivity characteristics in addition to the extreme inertness to basic and acidic compounds. Long chain alkane bonded phases collapse under low organic phase conditions on most reverse phase HPLC columns causing poor reproducibility and slow reequilibration. Fast gradients can be run on TARGA columns from initial 100% aqueous conditions with fast cycle times and very good run-to-run reproducibility. TARGA columns can also be run isocratically in 100% aqueous conditions for carbohydrate analysis, or with only a few percent organic modifier to achieve selectivity on solutes that are retained under typical reverse phase conditions.



Fat-Soluble Vitamin Assay

TARGA C18 5µm 100x2.1mm
Part Number TS-1021-C185
3% water in MeOH mobile phase
200µl/min, diode array detection



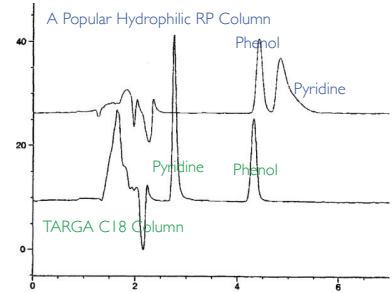
Analysis of Very Polar Antibacterials with a Highly Aqueous Mobile Phase

1. Vancomycin, 2. Cefotaxime, 3. Cefazolin

TARGA C18 100x2.1mm TS-1021-C185
Mobile Phase: 92% Water with 0.1% TFA pH2.5,
8% MeOH, DAD at 230nm

TARGA's Superior Hydrophilic Reverse Phase Properties

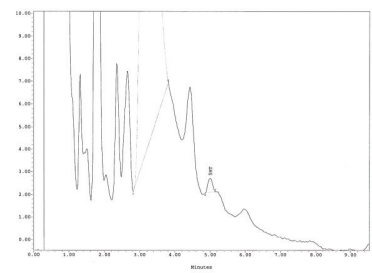
Several manufacturers offer reverse phase column products with imbedded polar functionality intended to enhance the chromatography of hydrophilic compounds like those illustrated in the previous antibacterial example. Unfortunately, most of these approaches introduce undesirable secondary effects that preclude their use with acidic or basic solutes unlike TARGA with its unique bonded phase.



TARGA Compared to a Competitor's Hydrophilic Column
150x4.6mm, 20% MeCN/water (unbuffered) 1mL/min

Trace Catecholamine Analysis

In vivo microdialysis present a challenge to both instrumentation and column design, especially when depended upon as a tool for routine analysis. The chromatogram below illustrates rat hypothalamus microdialysis analysis for 5HT. Researchers report that the 100x2.1mm Higgins Analytical PEEK and titanium TARGA C18 column operates routinely at 0.2 - 100 nM detection levels.



5HT Analysis of Rat Hypothalamus Dialysate

TARGA C18 5µm 100x2.1mm
P/N TS-1021-C185

NaH₂PO₄ 0.15M, OSA 0.74mM, EDTA 0.1mM
pH 2.87 (orthophosphoric acid) 2% IPA

Instrumentation: Flux Rheos Isocratic Pump, In-line Solvent Degasser, Spark Holland Triathlon Autosampler, Antec INTRO EC Detector

Detection levels of 0.2 - 100 nM are routinely achieved.

