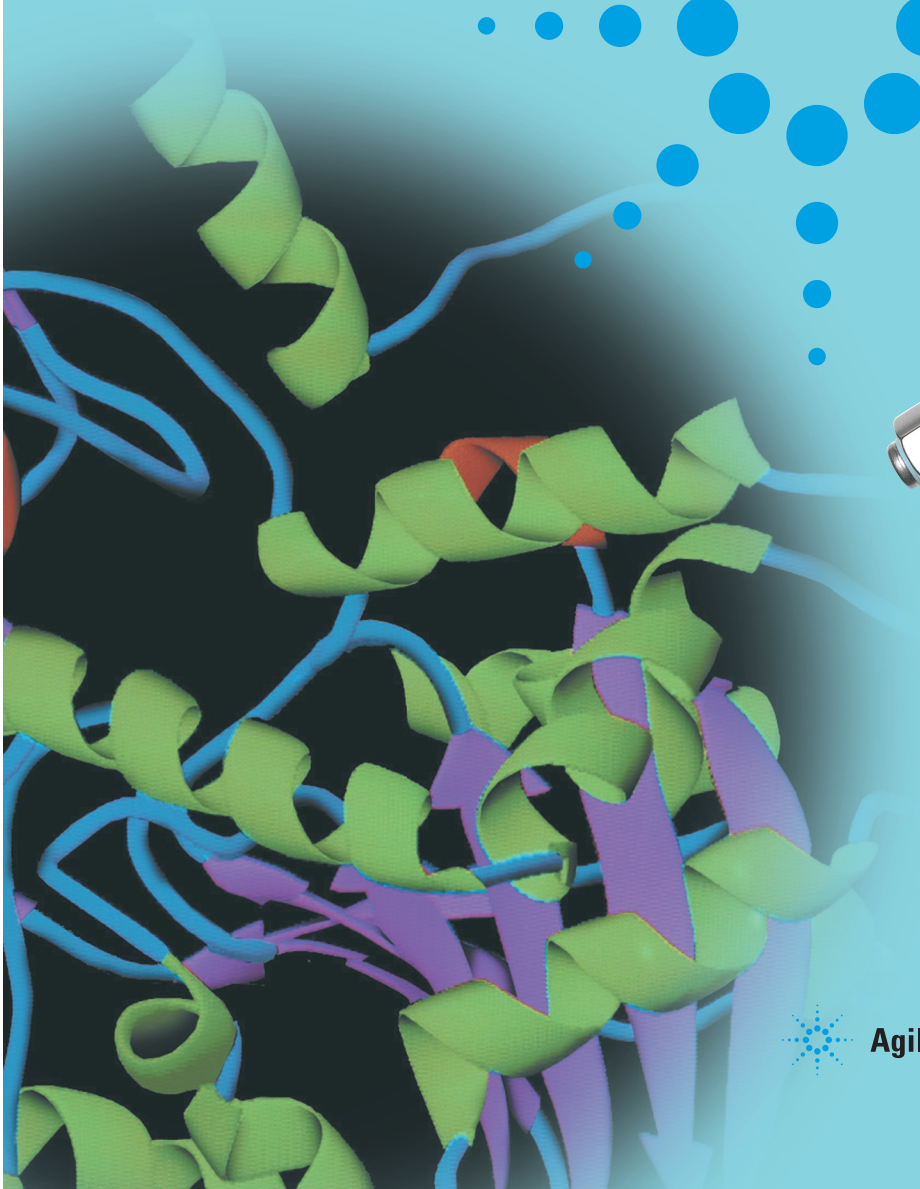
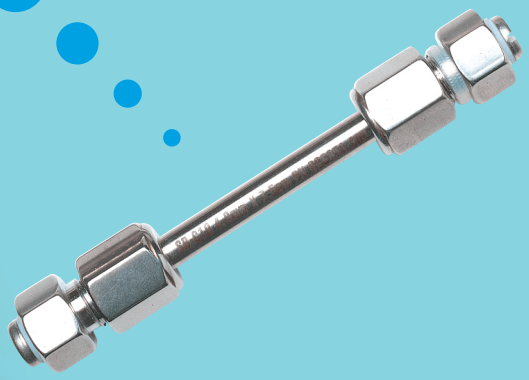
Poroshell 300SB-C18

for Fast, High Resolution Protein Separations





World's Fastest Protein Separation

Agilent Technologies

Introducing . . . Poroshell 300SB-C18

for Fast, High Resolution Protein Separations

In the world of proteomics and protein chemistry you are creating a revolution in discovery. Now, here is a tool to revolutionize your separations — Poroshell 300SB-C18 (Figure 1) . Constructed of a thin layer of porous silica on a solid core (Figure 2), Poroshell 300SB-C18 gives you improved speed, separating proteins in minutes or seconds, with high resolution (Figures 3, 5, 6). Bonded with the patented StableBond C18 phase (Figure 4A) that has given reliable separations, with unmatched column stability (Figure 4B), Poroshell 300SB-C18 offers the ability to separate even at high temperatures with minimal bleed, giving clean MS signals at ultra high speed. Built on a unique particle, Poroshell 300SB also exhibits low backpressure, so you can separate at very high flow rates. Now you have a tool to help conquer proteomics and protein analysis — fast!

Figure 1
Scanning Electron Micrograph of Poroshell Particle

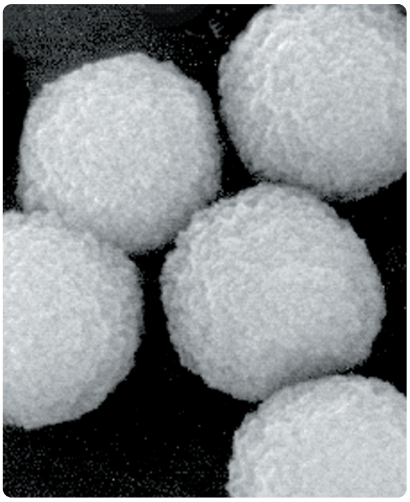
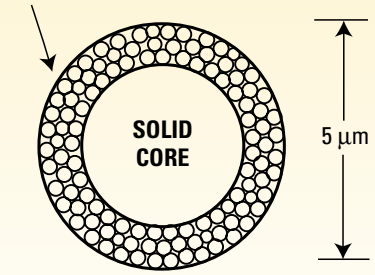


Figure 2
High Efficiency at High Flow Rates

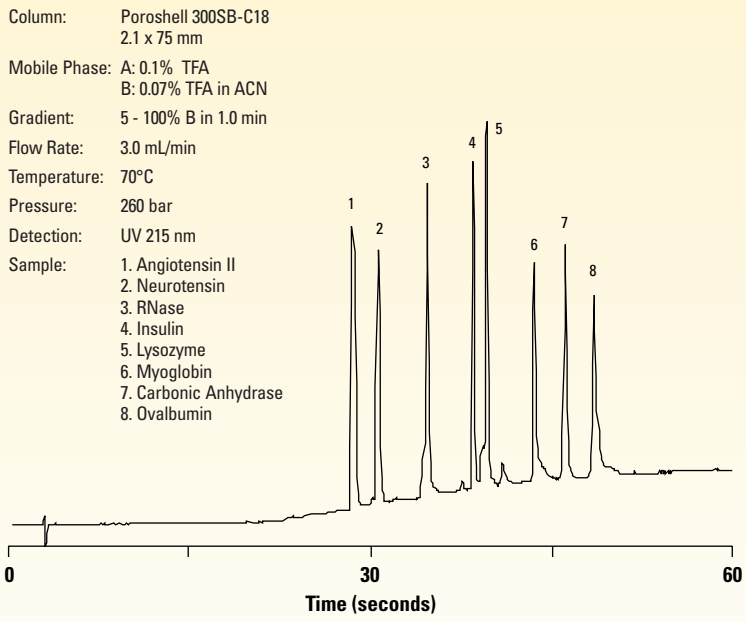


The Poroshell 300SB-C18 particle is a revolutionary chromatography media — superficially porous particles — that produce very fast, high resolution, RP-HPLC separation of proteins, DNA and other macromolecules. Poroshell works well for high resolution of macromolecules because of the rapid mass transfer in and out of the thin porous shell bonded phase. Mass transfer for macromolecules on comparable, completely porous particles, is slower due to the increased path the macromolecule must travel.

The Agilent 1100 LC/MSD

Figure 3

Fast, High Resolution Separation of Peptides and Proteins with Poroshell 300SB-C18 . . . *in Seconds*



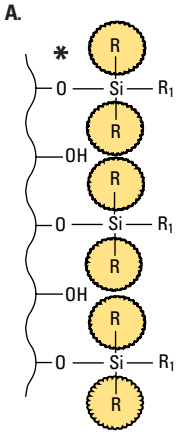
Separation between solutes indicates good peak capacity for rapidly separating complex samples.

Kirkland, J.J., *Journal of Chromatographic Science,* 38 (2000) 535-544.

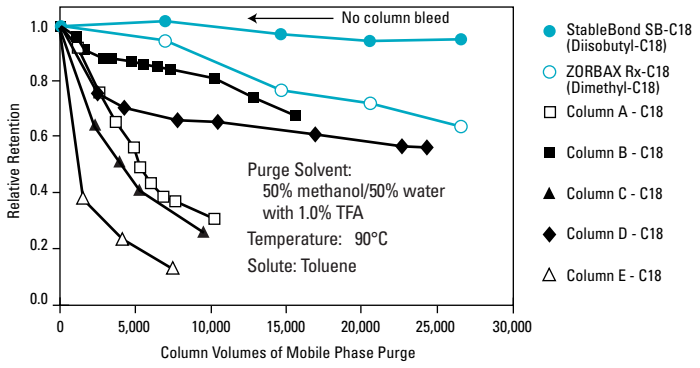
Figure 4

Excellent for LC/MS, Poroshell 300SB-C18 Uses StableBond Chemistry to Minimize Column Bleed at Low pH

A.



B. StableBond Stability Test



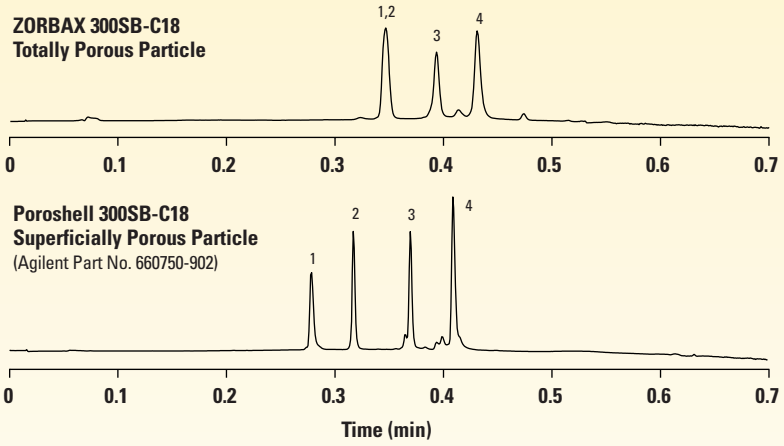
Kirkland, J.J. and J.W. Henderson, *Journal of Chromatographic Science,* 32 (1994) 473-480.

At low pH, reversed phase bonded phases silica break down by hydrolyzing the siloxane bond* (Figure 4A). This breakdown can be almost entirely eliminated by using bulky silanes shown above in StableBond RP-HPLC bonding chemistry.

Poroshell 300SB-C18 is bonded with StableBond surface chemistry employed in the widely used ZORBAX SB and 300SB columns. StableBond columns can be used at low pH with unsurpassed stability for difficult separations — even at high temperatures.

Figure 5

Poroshell Gives High Resolution Compared to Totally Porous Particles



Column: 300SB-C18, 2.1 x 75 mm, 5 µm

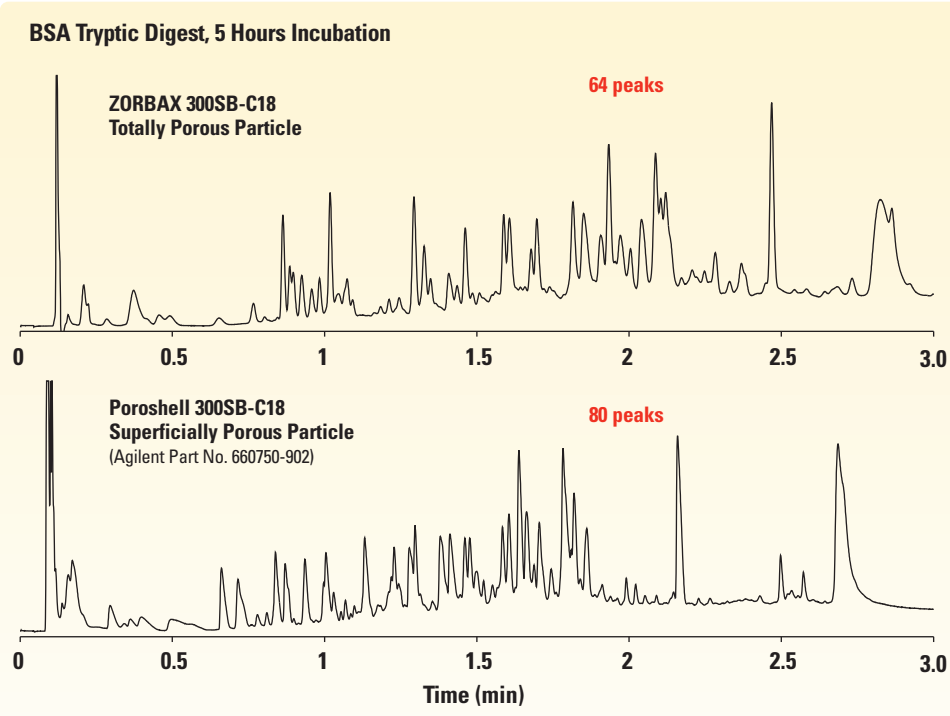
Mobile Phase:
Gradient: 5 - 100% B in 0.67 min.
A: 95% H_2O, 5% ACN with 0.1% TFA
B: 5% H_2O, 95% ACN with 0.07% TFA

Flow: 3.0 mL/min
Temperature: 70°C
Detector: UV 215 nm
Sample: 200 µg each
1. Neurotensin 3. Lysozyme
2. RNaseA 4. Myoglobin

At high flow rates, protein peaks broaden on a totally porous particle, whereas on Poroshell, peaks remain sharp.

Figure 6

Poroshell 300SB Gives Additional Information . . . *Fast!*
3-Minute Peptide Digest Separation



Column: 300SB-C18, 2.1 x 75 mm, 5 µm

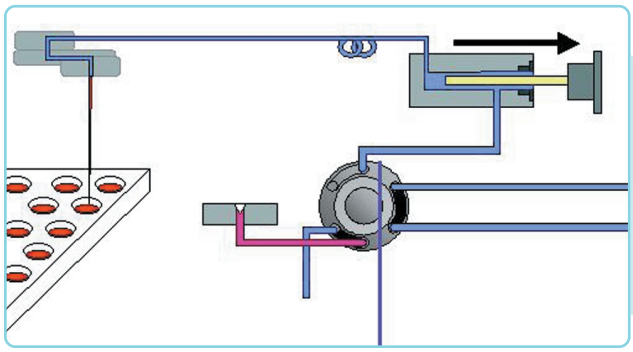
Mobile Phase:
Gradient: 0 - 100% B in 6 min.
A: 0.1% TFA, H_2O
B: 0.07% TFA, ACN

Flow: 2.0 mL/min
Temperature: 70°C
Detector: UV 206 nm
Sample: 10 µL injection

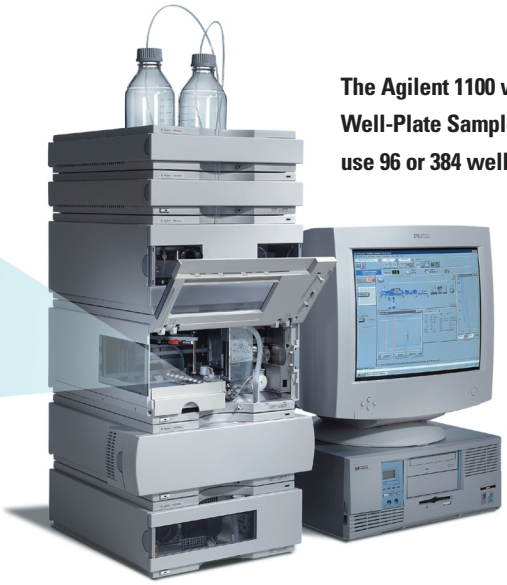
With peptide digests, Poroshell can separate more peaks at high flow rate.

Figure 7

Poroshell Columns Can be Used with the Agilent 1100 Well-Plate Sampler (WPS) with Overlapped Injection for Even Faster Results



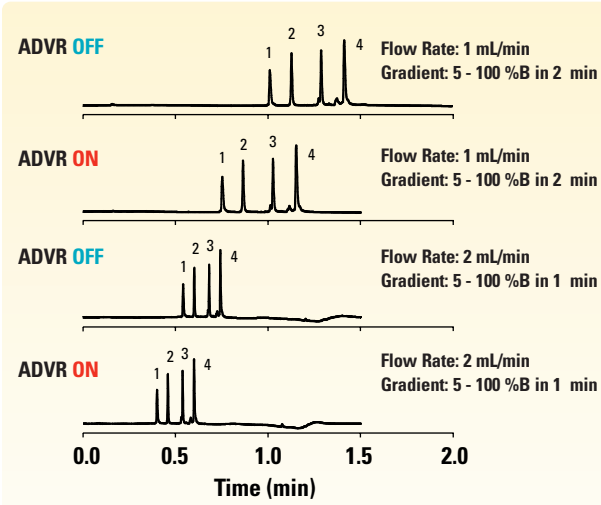
With Automatic Delay Volume Reduction (ADVR) on, sample draw can occur during a run (overlap mode), where the next sample is loaded during the preceding run.



The Agilent 1100 with Well-Plate Sampler can use 96 or 384 well-plates.

Figure 8

Perform High-Throughput Protein Analysis Using Poroshell 300SB-C18 and Overlapped Injection



Agilent 1100 DAD
Agilent 1100 WPS with ADVR

Column: **Poroshell 300SB-C18**
2.1 x 75 mm, 5 µm

Mobile Phase:
A: 95% H_2O, 5% ACN with 0.1% TFA
B: 5% H_2O, 95% ACN with 0.07% TFA

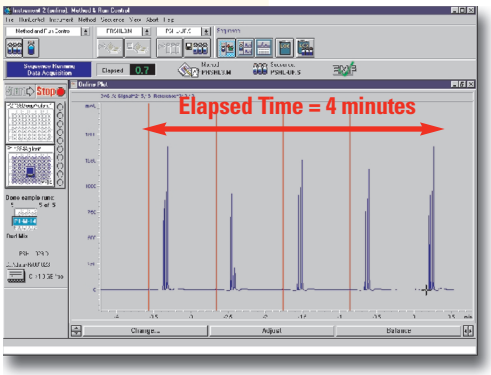
Temperature: 70°C

Detector: UV 215 nm

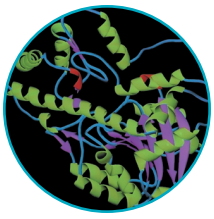
Sample:
1. Neurotensin
2. RNaseA
3. Lysozyme
4. Myoglobin

The default loop wash is 5X the injection volume. Pulse damper varies from 180 to 480 µL depending on pressure.

Instrument-Column Synergy in Optimizing Reversed-Phase HPLC Analysis of Protein and Peptides, ISPPP 2000, Ricker, R.D. and B.E. Boyes, Agilent Technologies, Inc.



Using the Agilent 1100 well-plate sampler, with Automatic Delay Volume Reduction (ADVR), reduced runtime by approximately 20% in the examples above.



Summary of Features, Advantages and Benefits of Poroshell 300SB-C18

Features	Advantages	Benefits
Unique, 300Å porous shell on solid particle	Fast kinetics	Fast, high resolution protein and other macromolecule separations
Uses 5 micron particle	Lower backpressure	Fast separations without associated higher pressures
Uses StableBond chemistry	Extremely stable at low pH	Long column life at low pH
		Excellent reproducibility for low pH protein separations, column-to-column, batch-to-batch
	Extremely stable at high temperatures	Faster run times using elevated temperatures
		Additional selectivity with different temperatures
Uses high purity Zorbax Rx-Sil sols	Less acidic (fewer metals)	Good peak shape
	5 µm particle size	High resolution
	High strength, high-pressure packing	Better resolution

Don't delay . . .

Place your order TODAY for the most revolutionary RP-HPLC column for proteomics — Poroshell 300SB-C18!

Poroshell 300SB-C18 Column Ordering Information

Column Description	Size (mm)	Particle Size (µm)	Part Number
Poroshell 300SB-C18 Analytical	2.1 x 75	5	660750-902

Call on Agilent Technologies, Inc. to provide your proteomics and protein separation needs. Other significant HPLC column products for protein analysis are porous ZORBAX 300SB (StableBond) C18, C8, C3 and CN, and porous ZORBAX 300Extend-C18.

Poroshell 300SB and all of our ZORBAX columns are the perfect fit for the Agilent 1100 LC and Agilent 1100 Capillary LC.

To place an order visit our online catalog at **www.agilent.com** on the World Wide Web, or contact your local Agilent Technologies authorized distributor.

Information, descriptions and specifications in this publication are subject to change without notice.

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