NOW WITH 12 CHEMISTRIES

INCLUDING CHEMISTRIES FOR HIGH-pH APPLICATIONS

BREAK FREE

FROM COMPROMISE

Nearly fifteen years ago, Agilent opened up a new world of Fast LC performance with the launch of Poroshell 300 superficially porous columns. The Poroshell 120 family expanded this technology to small molecules, providing high resolution, high efficiency separations with less backpressure than sub-2 µm columns.

Today, the Poroshell 120 family has grown to include 12 chemistries, and has earned a reputation as a rugged and reproducible superficially porous choice for fast – and uncompromising – LC performance.

But don't take *our* word for it... look inside to see what Poroshell 120 users are saying.

The Measure of Confidence

LIMITED-TIME OFFER: BUY 2 GET 1 FREE*

Go to: **agilent.com/chem/discoverporoshell**

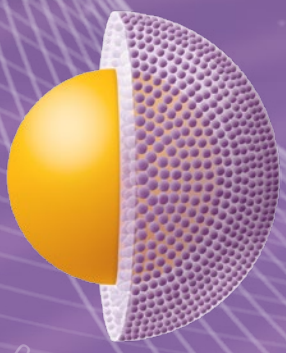
Use promo code: **9278**

*33% savings on a 3-column purchase. Limit three per customer.

A VARIETY OF BONDED PHASES MEANS YOU NEVER HAVE TO COMPROMISE ON SELECTIVITY

Poroshell 120 columns are made at the same facility as Agilent's industry-leading ZORBAX column family. The bonding chemistries used with Poroshell 120 columns mirror those of *all* ZORBAX columns, giving you the advantages of easier method transfer and assured scalability from lab to lab, around the world.

All the selectivities you need to perfect your separation



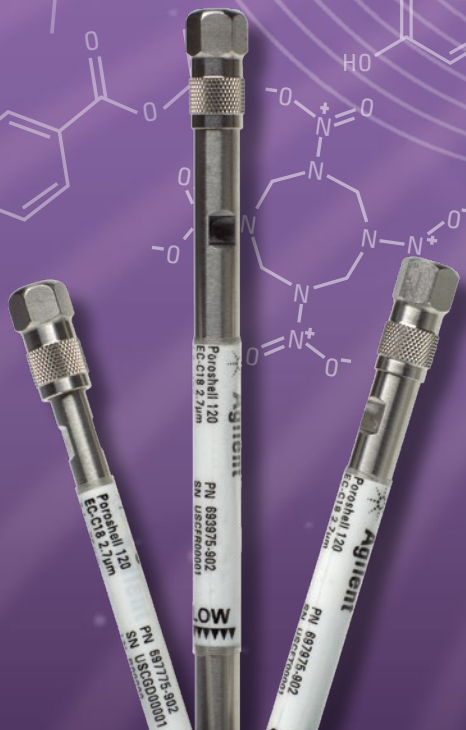
AN EXCELLENT FIRST CHOICE

Poroshell 120 EC-C18 and EC-C8 (USP L1)

You can count on this high-performance phase to deliver excellent peak shape and resolution for acids, bases, and neutrals. This chemistry is very similar to the ZORBAX Eclipse Plus phase, for easy method transferability.

Exceptional peak shape, efficiency, resolution and lifetime.

Tip: Select the C18 phase first, and use the C8 phase for less retention with a variety of samples.



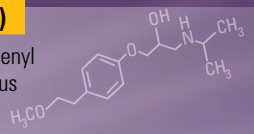
Quotes from actual users

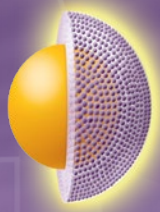
"A variety of published methods from Agilent use Poroshell 120, allowing for easy method development."
– Toxicology Lab

"Methods easily convert from [ZORBAX] Eclipse Plus columns to Poroshell 120 – we use them for all methods."
– Toxicology Lab

Poroshell 120 Phenyl-Hexyl (USP L11)

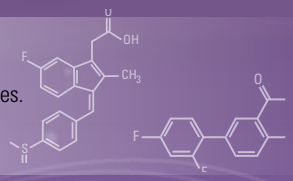
This phase offers an alternative selectivity for phenyl groups, and is very similar to ZORBAX Eclipse Plus Phenyl-Hexyl for easy method transfer.





NEW Poroshell 120 PFP

Provides an alternative selectivity for halogenated compounds and polar analytes.



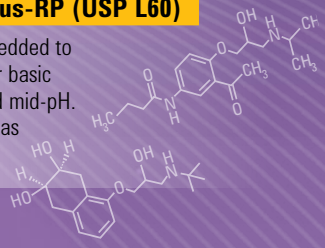
HIGH PH APPLICATIONS

NEW Poroshell 120 HPH-C18 and HPH-C8

The silica in this special chemistry has been modified with a proprietary process to increase stability at high pH levels.

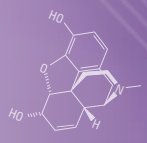
Poroshell 120 Bonus-RP (USP L60)

Bonus-RP is polar-embedded to improve peak shape for basic compounds at low- and mid-pH. This phase is the same as ZORBAX Bonus-RP.



Poroshell 120 HILIC

With its unbonded silica, Poroshell 120 HILIC enables you to retain and separate small polar analytes.



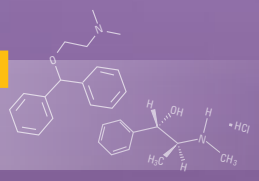
LOW PH APPLICATIONS

StableBond SB-C18 and SB-C8 (USP L1)

StableBond performs well with acids, bases, and neutrals – with superior lifetime at low pH. What's more, these phases transfer readily from ZORBAX SB-C18 and ZORBAX SB-C8 phase chemistries.

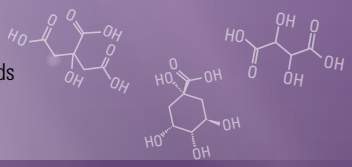
Poroshell 120 EC-CN (USP L10)

Similar to ZORBAX Eclipse XDB-CN, this cyano phase simplifies method transfer.



Poroshell 120 SB-Aq

This proprietary phase provides an alternate selectivity option, and is ideal for polar compounds and high aqueous conditions. Its chemistry is the same as ZORBAX SB-Aq.



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POROSHELL 120: THE RUGGED CHOICE FOR HIGH-RESOLUTION LC AND LC/MS

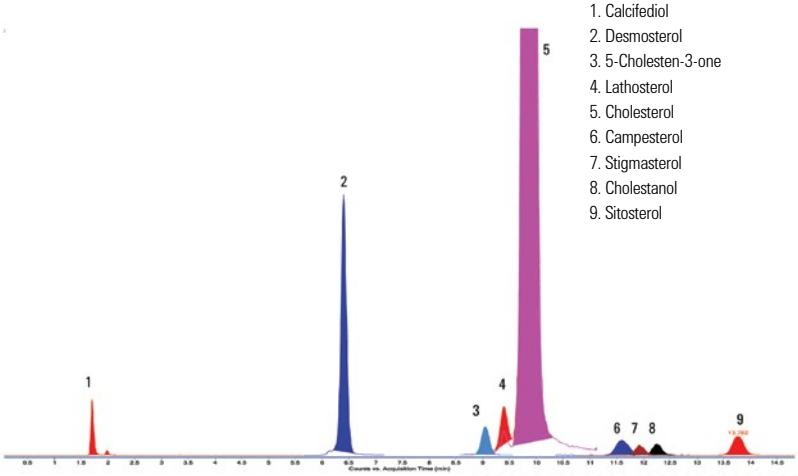
Agilent Poroshell 120 columns can make your LC, LC/MS, and LC/MS/MS systems work even harder. Their porous outer layer and solid core limit diffusion distance and improve separation speed, while their narrow particle size distribution improves efficiency and resolution. Other advantages include:

- Better resolution of closely eluting peaks
- High-efficiency, high-resolution performance without the backpressure normally associated with Fast LC
- More compounds resolved in a single analysis
- Quick, efficient resolution of critical isobaric compounds
- Improved LC/MS accuracy and identification
- A standard 2 µm frit that resists plugging with dirty samples

"With this column I was able to separate substances in a short time with sufficient resolution. It does not take long to develop the HPLC method."

– Pharmaceutical Company

Separation of cholesterol and other sterols using a Poroshell 120 EC-C18 column with LC/MS/MS



1. Calcifediol
2. Desmosterol
3. 5-Cholesten-3-one
4. Lathosterol
5. Cholesterol
6. Campesterol
7. Stigmasterol
8. Cholestanol
9. Sitosterol

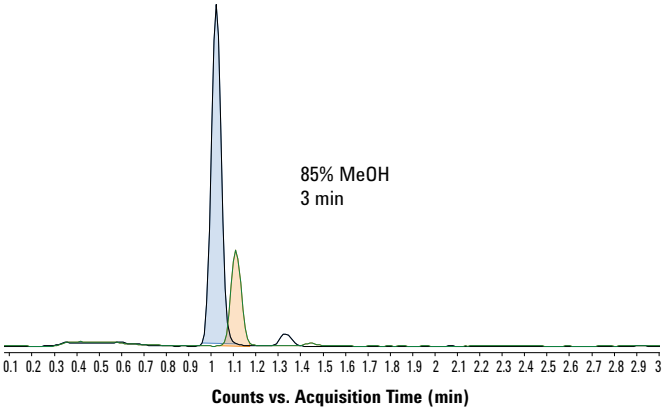
Column:	Poroshell 120 EC-C18, 3.0 x 100 mm, 2.7 µm P/N 695975-302
Mobile phase:	80% Acetonitrile, 20% methanol
Flow rate:	0.6 mL/min
Injection volume:	2 µL
Temperature:	20 °C
Detection:	APCI, positive ion

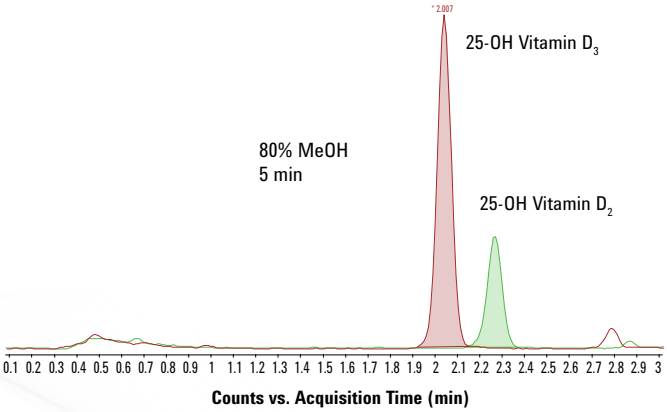
Note that adequate resolution was obtained, even at the 2000:1 ratio for cholesterol:lathosterol. This is critical for effective quantitation, because the two compounds have the same molecular weight.

"I like the ruggedness of the stationary phase... and the small particle size allows us to reduce analysis time."

– Consumer Products

1D Separation of Vitamin D2/D3 on an Agilent Poroshell 120 EC-C18 column





Column:	Poroshell 120 EC-C18, 2.1 x 50 mm, 2.7 µm P/N 699775-902
Mobile phase:	A: H_2O + 0.1% formic acid B: MeOH + 0.1% formic acid
Flow rate:	0.5 mL/min
Injection volume:	10 µL
Temperature:	50 °C
Auto sampler temp:	5 °C
Needle wash:	Flush port (50:25:25, IPA: MeOH:H_2O) 5 sec
Isocratic analysis:	A: 20%, B: 80%
Analysis time:	5 min

Poroshell 120 provides a very fast LC/MS/MS analysis of Vitamin D2/D3 in plasma. Isocratic conditions were varied to compare speed of separation with chromatographic resolution.

Rugged performance, even after 3000 injections

Analyte	%RSD (RT)	Analyte	%RSD (RT)	Analyte	%RSD (RT)
Morphine	0.7	Meperidine	0.4	Triazolam	0
Codeine	0.4	Zolpidem	0.3	Naltrexone	0.1
Hydrocodone	0.4	Fentanyl	0.1	Chlordiazepoxide	0.1
MDMA	0.3	EDDP	0.1	Desmethyl diazepam	0.1
NorFentanyl	0.2	Nitrazepam	0.1	Buprenorphine	0.3
Heroin	0.2	Propoxephine	0.1	Cocaethylene	0.2
Methyl phenidate	0.2	Buprenorphine	0.3	11-nor-9-carboxy-Δ9-THC	0

This test confirms the outstanding longevity of Poroshell 120 columns, with little performance degradation after 3000 injections. Stability is expressed in retention time consistency (%RSD).

"The ruggedness of [Poroshell] is its most important feature to me in my applications."

– Pharmaceutical Company

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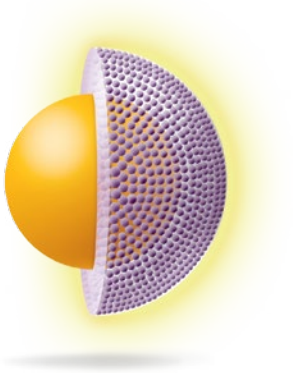
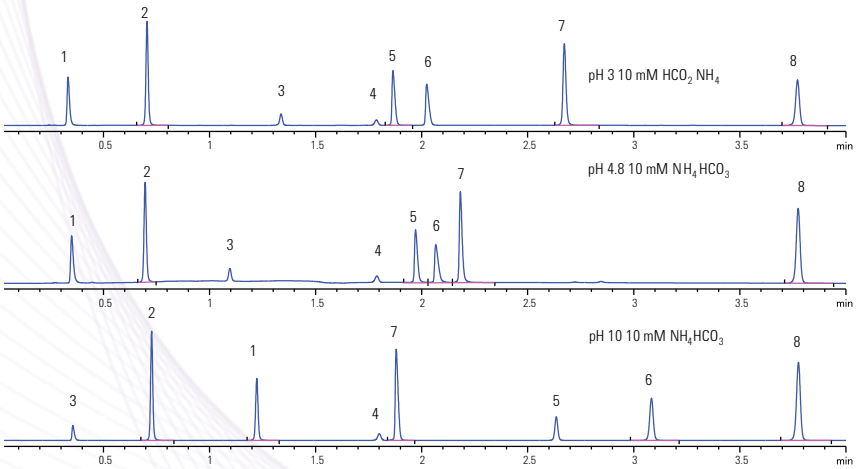
ENABLE HIGH-PERFORMANCE SCREENING METHODS WITH NEW POROSHELL HPH-C18 AND HPH-C8

A robust method development process is critical to ensuring that your method is long lasting, stable, and reliable. Because the retention and selectivity of ionizable compounds (such as acids and bases) can change significantly with varying pH levels, it is becoming standard practice to use low, medium, and high pH analyses during method development.

NEW Poroshell HPH-C18 and HPH-C8 technologies are made by chemically modifying Poroshell particles using proprietary technology designed to give high pH stability. That means you can use the Poroshell 120 family for *all* your Fast LC method development needs, *regardless of mobile phase pH*.



Reliable separations for varying pH levels



1. Procainamide
2. Caffeine
3. Acetyl Salicylic Acid
4. Hexanophenone Deg.
5. Dipyrimadole
6. Diltiazem
7. Diflunisal
8. Hexanophenon

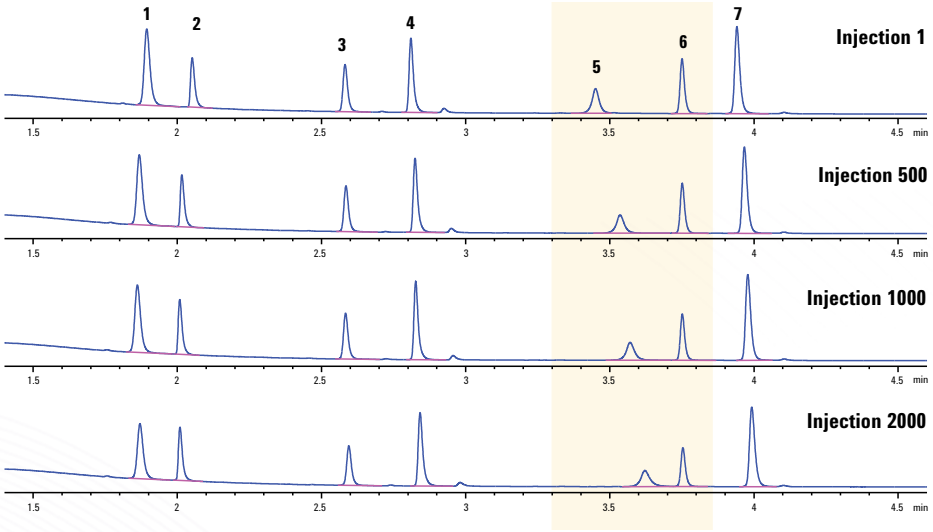
Here, a method utilizing low pH, mid pH, and high pH levels was used to separate the same mixture of acids, bases, and neutrals. The highest resolution for all compounds was obtained under higher-pH conditions; therefore, high pH would be the best choice going forward.

> *"Poroshell [allows us to try] a wide range of pH levels to be sure that – for all of them – the column was able to work well. I found good retention time and repeatability."*
>
> **– Pharmaceutical Company**

Excellent stability at High pH

Count on Poroshell HPH chemistries for consistent performance and longevity, even when using high-pH mobile phases. Here, 2000 injections of a separation mixture containing acidic, basic, and neutral compounds were performed under extreme pH 10 conditions on an Agilent Poroshell HPH-C18 and a non-Agilent high pH column. Notice the non-Agilent column's loss of resolution between the Nortryptyline and Heptanophenone while the Poroshell HPH-C18 maintains resolution.

Column: Agilent Poroshell HPH-C18 2.1 x 50 mm, 2.7 µm (P/N 699775-702)



Instrument: Agilent 1260 Infinity Binary LC System

Mobile phase: **A:** 10 mM Ammonium Bicarbonate adjusted to pH 10.0 in water
B: Acetonitrile

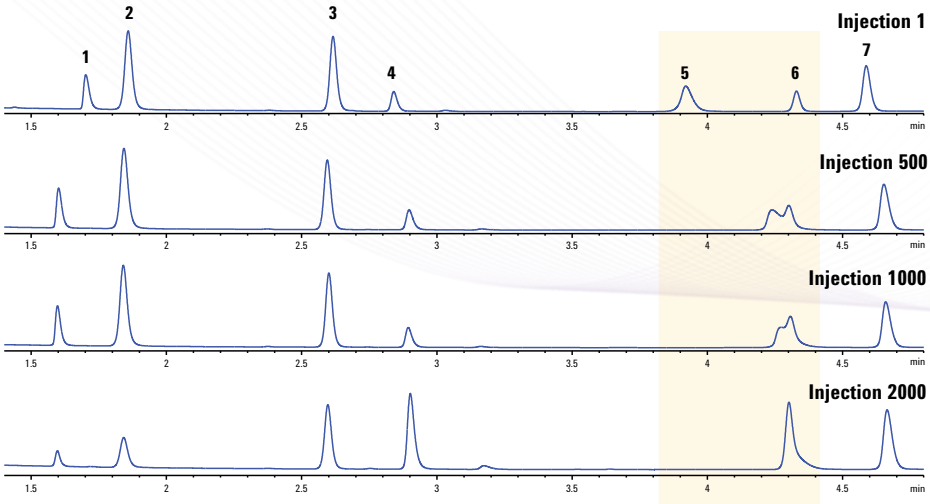
Flow rate: 0.4 mL/min

Gradient:

Time	% B
0	5
5	95
5.1	5

1. Methyl Salicylate
2. 4 Chlorocinnamic acid
3. Acetophenone
4. Quinine
5. Nortryptyline
6. Heptanophenone
7. Amitriptyline

Column: non-Agilent High pH 2.1 x 50 mm, 3 µm



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OPTIMIZE EVERY SEPARATION WITH A CHOICE OF ORTHOGONAL PHASES

Selectivity is the most powerful tool for optimizing HPLC separations. Poroshell 120 EC-C18 is the best place to start your method development, because of its exceptional flexibility. However, if you are working with challenging analytes, the Poroshell 120 family has many additional chemistries to choose from.

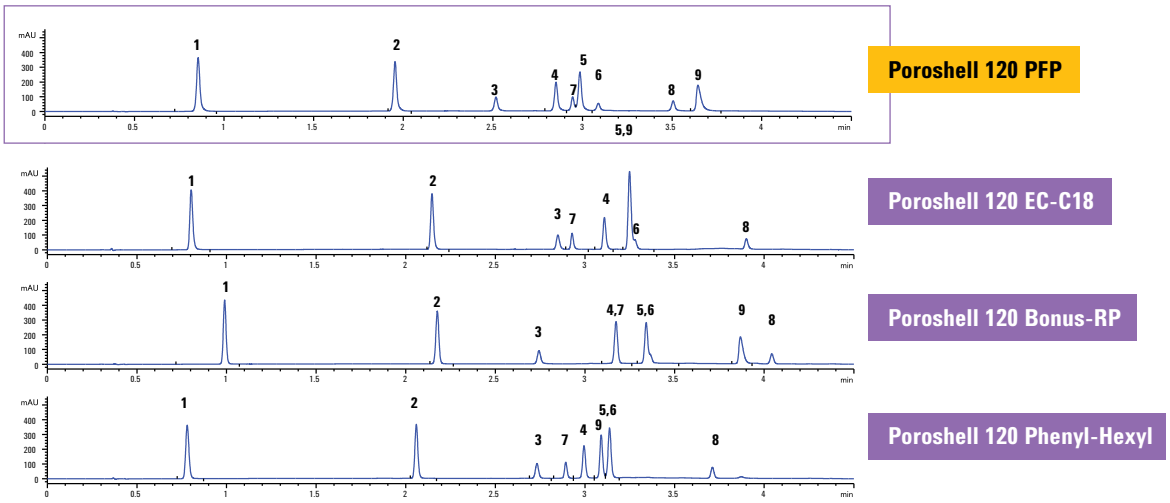
For example, our **NEW Poroshell 120 PFP columns** are engineered with a pentafluorophenyl ligand, which provides an orthogonal separation mechanism with traditional reversed-phase columns.[1]

By specifically targeting polar retention mechanisms, PFP phases can separate analytes based on small differences in structure, substitution, and steric access to polar moieties. The resulting selectivity for positional isomers, halogenated compounds, and polar analytes is particularly useful when analyzing complex mixtures and small-molecule pharmaceuticals.

1. "Fluorinated HPLC Phases: Looking Beyond C18 for Reverse-Phase HPLC" M. Przybyciel, LCGC Europe 19(1) pp 19-28, 2006.

Comparative analysis of NSAIDs

1. APAP
2. Phenacetin
3. Piroxicam
4. Tolmetin
5. Ketoprofen
6. Naproxen
7. Sulindac
8. Diclofenac
9. Difunisal



Columns: Agilent Poroshell 120 PFP, 4.6 x 50 mm, 2.7 µm (P/N 699975-408)
Agilent Poroshell 120 EC-C18, 4.6 x 50 mm, 2.7 µm (P/N 699975-902)
Agilent Poroshell 120 Bonus-RP, 4.6 x 50 mm, 2.7 µm (P/N 699968-901)
Agilent Poroshell 120 Phenyl-Hexyl, 4.6 x 50 mm, 2.7 µm (P/N 699975-912)

Instrument: Agilent 1260 Infinity Binary LC System

Mobile phase: A: 20 mM NH_4HCO_2, pH 3.0
B: Acetonitrile

Flow rate: 2 mL/min

Detection: UV, 254 nm

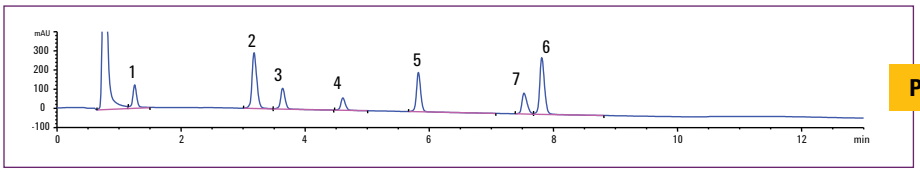
Gradient:

Time	% Organic
0	8
6	100
7	100
8	8

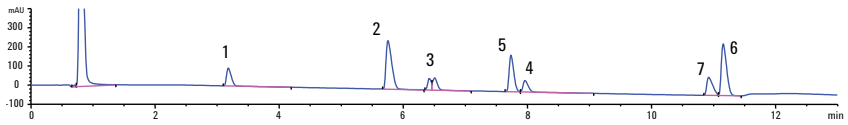
This separation was completed with four Poroshell 120 chemistries using acetonitrile; each run was only five minutes long. Only Poroshell 120 PFP resolved all compounds, although both Poroshell 120 EC-C18 and Poroshell Phenyl-Hexyl columns eluted the compounds in the same order. The PFP and Bonus-RP columns had very similar elution orders, with the exception of the last two peaks.

Analysis of beta blockers: A comparison of Poroshell 120 phases

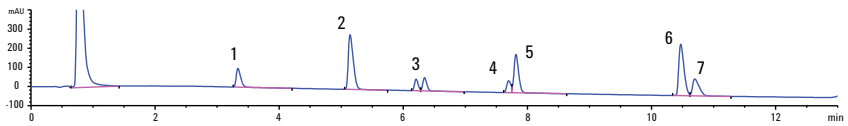
1. Atenolol
2. Pindolol
3. Naldolol
4. Metoprolol
5. Acebutolol
6. Propranolol
7. Alprenolol



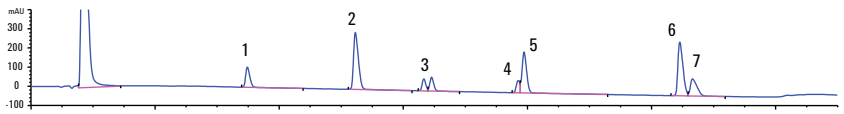
Poroshell 120 Bonus-RP



Poroshell 120 Phenyl-Hexyl



Poroshell 120 EC-C18



Poroshell 120 SB-C18

Columns: Poroshell 120 Bonus-RP, 2.1 x 100 mm, 2.7 µm (P/N 695768-901)
Poroshell 120 Phenyl-Hexyl, 2.1 x 100 mm, 2.7 µm (P/N 695775-912)
Poroshell 120 EC-C18, 2.1 x 100 mm, 2.7 µm (P/N 695775-902)
Poroshell 120 SB-C18, 2.1 x 100 mm, 2.7 µm (P/N 685775-902)

Instrument: Agilent 1260 Infinity Binary LC System

Mobile phase: A: 10 mM NH_4CO_2, pH 3.8
B: MeOH

Flow rate: 0.4 mL/min

Temperature: 40 °C

Detection: 260 nm

Gradient: 10% B to 30% B/12 min

This challenging separation demonstrates how different selectivities produce different results. Overall, the Bonus-RP phase delivered the best peak shape and resolution; this was especially true for Naldolol, which appeared as a split peak with the C18 and Phenyl-Hexyl phases.

"Technology that amazes. It addresses the sensitivity issues we have."

– Pharmaceutical Lab

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END-TO-END QUALITY CONTROL

Single-step coacervation: a key to reproducibility

Some manufacturers laboriously create the porous shell by applying layer after layer of particles. At Agilent, however, we apply the porous shell in one single step – similar to the coacervation technique used to make traditional ZORBAX columns. This unique single-step process delivers higher yields and more column-to-column reproducibility.

Uncompromising standards translate into reproducible results

Agilent has more than 40 years of experience manufacturing LC columns. We make all of our ZORBAX and Poroshell 120 columns in our manufacturing location in Newport, Delaware. Our experience has shown us that reproducible results can only happen when every column meets the highest industry standards.

That's why we manufacture our own silica and bonded phases – and test our silica more than seven times, including chromatographic tests, across multiple sample types. We also offer multiple particle sizes, chemistries, lengths, and IDs to provide global scalability and transferability.

> *"Better quality than other coreshell columns."*
>
> **– Academic Lab**

More than just columns... Agilent supplies minimize downtime and keep your system operating at top performance

Vials, caps, and other "small" components can contribute to big problems – such as injector damage, ghost peaks, and analyte degradation – particularly with Fast LC. That's why Agilent supplies are designed and manufactured to deliver the same reliability and reproducibility you expect from Agilent instruments and columns.

- Agilent long-life deuterium lamps are engineered to provide consistent light intensity throughout the life of the lamp, supporting reproducible results and less rework.
- Agilent CrossLab supplies enable you to get high quality parts and supplies for all the major brand instruments in your lab from Agilent.

Learn more at **agilent.com/chem/fastlcsupplies**

> *"Good quality, reproducible results."*
>
> **– Pharmaceutical Company**

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PUSH YOUR UHPLC PERFORMANCE TO *INFINITE* LIMITS
AND RUN YOUR CONVENTIONAL METHODS WITH CONFIDENCE

Whether you need a "workhorse" LC system for routine analysis or the most sophisticated, high-resolution LC/MS system, the Agilent 1200 Infinity Series has what you're looking for.

Together with Poroshell 120 columns, our 1200 Infinity Series LC systems deliver ultimate resolution and sensitivity, while helping you boost your separation power per time. They also ensure easy method transferability between systems – without redevelopment or revalidation.

Infinitely more
AFFORDABLE

1220
Infinity LC

Infinitely more
CONFIDENT

1260
Infinity LC

Infinitely more
POWERFUL

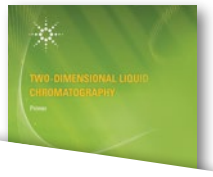
1290
Infinity LC

Learn why Agilent's 1200 Infinity Series is infinitely better
at **agilent.com/chem/infinity**

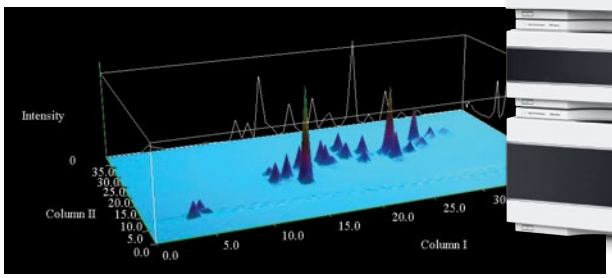
Look to the Agilent 1290 Infinity 2D-LC solution for your easiest start into 2D-LC

Boost your separation performance with the first complete and ready-to-go 2D-LC solution! Based on the powerful Agilent 1290 Infinity LC, the Agilent 1290 Infinity 2D-LC solution is the ideal tool for your most complex samples. Besides new levels of separation power, detection sensitivity, retention time, and area precision in 2D-LC – it offers:

- An easy 2D-LC Quick Start Kit containing samples, columns, and methods for the fastest quick start into 2D-LC
- A flexible dual use system to switch between 1D UHPLC and 2D-LC
- A single solution with innovative valve technology for comprehensive and heart-cutting 2D-LC and the easiest possible multi-heart cutting 2D-LC
- The fastest most intuitive method setup to easily program the highest performing gradients
- High performance data analysis for comprehensive and multiple heart-cutting 2D-LC



See how 2D-LC can increase your separation power. Request your free Primer at **agilent.com/chem/2DLC-Primer**



The easy-to-use Agilent 1290 Infinity 2D-LC system combines the separation power of two-dimensional LC with easy system and method setup.

Visit **agilent.com/chem/discoverporoshell** for videos, Application Notes, and more – or to order now

SPECIFICATIONS AND ORDERING INFORMATION

Agilent Poroshell 120 (2.7 µm)

Size (mm)	EC-C18	EC-C8	SB-C18	SB-C8	NEW HPH-C18	NEW HPH-C8
4.6 x 150	693975-902	693975-906	683975-902	683975-906	693975-702	693975-706
4.6 x 100	695975-902	695975-906	685975-902	685975-906	695975-702	695975-706
4.6 x 75	697975-902	697975-906	687975-902			
4.6 x 50	699975-902	699975-906	689975-902	689975-906	699975-702	699975-706
4.6 x 30	691975-902	691975-906	681975-902			
3.0 x 150	693975-302	693975-306	683975-302	683975-306	693975-502	693975-506
3.0 x 100	695975-302	695975-306	685975-302	685975-306	695975-502	695975-506
3.0 x 75	697975-302	697975-306	687975-302			
3.0 x 50	699975-302	699975-306	689975-302	689975-306	699975-502	699975-506
3.0 x 30	691975-302	691975-306	681975-302			
2.1 x 150	693775-902	693775-906	683775-902	683775-906	693775-702	693775-706
2.1 x 100	695775-902	695775-906	685775-902	685775-906	695775-702	695775-706
2.1 x 75	697775-902	697775-906	687775-902			
2.1 x 50	699775-902	699775-906	689775-902	689775-906	699775-702	699775-706
2.1 x 30	691775-902	691775-906	681775-902			

Size (mm)	Phenyl-Hexyl	SB-Aq	Bonus-RP	HILIC	EC-CN	NEW PFP
4.6 x 150	693975-912	683975-914	693968-901	693975-901	693975-905	693975-408
4.6 x 100	695975-912	685975-914	695968-901	695975-901	695975-905	695975-408
4.6 x 50	699975-912	689975-914	699968-901	699975-901	699975-905	699975-408
3.0 x 150	693975-312	683975-314	693968-301	693975-301	693975-305	693975-308
3.0 x 100	695975-312	685975-314	695968-301	695975-301	695975-305	695975-308
3.0 x 50	699975-312	689975-314	699968-301	699975-301	699975-305	699975-308
2.1 x 150	693775-912	683775-914	693768-901	693775-901	693775-905	693775-408
2.1 x 100	695775-912	685775-914	695768-901	695775-901	695775-905	695775-408
2.1 x 50	699775-912	689775-914	699768-901	699775-901	699775-905	699775-408

Note: Poroshell 120 columns have a 600 bar/9000 psi pressure limit.

Agilent Poroshell 120 Fast Guards for UHPLC

Size (mm)	EC-C18	EC-C8	SB-C18	Phenyl-Hexyl	NEW PFP
4.6 x 5	820750-911	820750-913	820750-912	820750-914	
3.0 x 5	823750-911	823750-913	823750-912	823750-914	
2.1 x 5	821725-911	821725-913	821725-912	821725-914	821725-915

> *"Reproducibility over a long time – very important to our work."*
>
> **– Pharmaceutical Company**

Agilent Poroshell 120 bonded phase specifications

Bonded Phase	Pore Size	Temp. Limits	pH Range	Endcapped	Carbon Load	Surface Area
EC-C18	120Å	60 °C	2.0-8.0	Double	10%	130 m^2/g
EC-C8	120Å	60 °C	2.0-8.0	Double	5%	130 m^2/g
SB-C18	120Å	90 °C	1.0-8.0	No	8%	130 m^2/g
SB-C8	120Å	80 °C	1.0-8.0	No	5.5%	130 m^2/g
HPH-C18	100Å	60 °C	3.0-11.0	Double	Proprietary	95 m^2/g
HPH-C8	100Å	60 °C	3.0-11.0	Double	Proprietary	95 m^2/g
Phenyl-Hexyl	120Å	60 °C	2.0-8.0	Double	9%	130 m^2/g
SB-Aq	120Å	80 °C	1.0-8.0	No	Proprietary	130 m^2/g
Bonus-RP	120Å	60 °C	2.0-9.0	Triple	9.5%	130 m^2/g
HILIC	120Å	60 °C	0.0-8.0	No	N/A	130 m^2/g
EC-CN	120Å	60 °C	2.0-8.0	Double	3.5%	130 m^2/g
PFP	120Å	60 °C	2.0-8.0	Yes	5.1%	130 m^2/g

Unique chemistries increase high-pH stability

Specifications represent typical values only.

Agilent Poroshell 300 (5 µm)

Description	Size (mm)	300SB-C18	300SB-C8	300SB-C3	300Extend-C18
Narrow Bore	2.1 x 75	660750-902	660750-906	660750-909	670750-902
MicroBore	1.0 x 75	661750-902	661750-906	661750-909	671750-902
Capillary	0.5 x 75		5065-4468		
Guard Cartridge, 4/pk	2.1 x 12.5	821075-920	821075-918	821075-924	
Guard Hardware Kit		820888-901	820888-901	820888-901	
MicroBore Guard, 3/pk	1.0 x 17	5185-5968	5185-5968	5185-5968	5185-5968

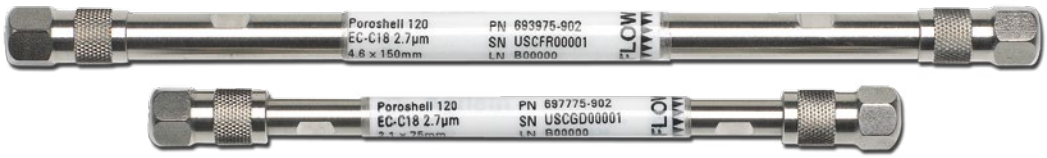
Part of the AdvanceBio Family

Note: Poroshell 300 columns have a 400 bar/6000 psi operating pressure limit.

Agilent Poroshell 300 bonded phase specifications

Bonded Phase	Pore Size	Temp. Limits	pH Range	Endcapped
Poroshell 300SB-C18, C8, C3	300Å	90 °C	1.0-8.0	No
Poroshell 300Extend	300Å	40 °C above pH 8 60 °C below pH 8	2.0-11.0	Yes

Specifications represent typical values only.



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