

## Confidently separate **challenging polar compounds** with a range of selectivity options

### Agilent ZORBAX Bonus-RP, ZORBAX SB-Aq and the Polaris Family of Columns

In applications such as drug development, target compounds are growing increasingly polar. To succeed, you need a reversed phase column that ensures excellent retention under aqueous conditions (up to 100%) – while avoiding secondary interactions, phase collapse, and shifting retention times.

To help you tackle these challenges, Agilent offers a range of columns, including ZORBAX Bonus-RP and SB-Aq columns, as well as the Polaris family of polar-modified LC columns with additional polar phases in C18, C8, Amide, and Ether chemistries.

Agilent's family of polar-optimized columns utilize ultrahigh-purity silica, novel polar modified technology, and unique bonded phases that maximize polar retention and selectivity, while virtually eliminating silanol activity.

Options include:

- **ZORBAX Bonus-RP columns** deliver excellent peak shapes with an embedded polar group, steric protection, and triple endcapping. Available in a range of particle sizes, from fast LC 1.8  $\mu\text{m}$  to 7  $\mu\text{m}$ .

- **ZORBAX SB-Aq columns** provide exceptional lifetime at low pH through unique StableBond bonding with no endcapping. Available in 1.8  $\mu\text{m}$  to 7  $\mu\text{m}$  sizes.
- **Polaris C18-A and Polaris C8-A columns** offer alternate selectivities for general polar applications and are designed with hydrogen-bond accepting endcapping. Available in 3  $\mu\text{m}$ , 5  $\mu\text{m}$ , and 10  $\mu\text{m}$  (C18-A only).
- **Polaris Amide-C18 columns** provide subtle alternative selectivity because they do not have steric protection. They utilize an embedded amide, similar to Bonus-RP columns, and are available in 3  $\mu\text{m}$  and 5  $\mu\text{m}$  particle sizes.
- **Polaris C18-Ether and C8-Ether columns** are endcapped with an ether group to create a more polar surface for selectivity variation. Available in 3  $\mu\text{m}$  and 5  $\mu\text{m}$  particle sizes.

All Agilent columns are meticulously designed and tested to meet stringent pharmaceutical requirements – from discovery to purification. They are an excellent choice for analyzing polar compounds in food safety and environmental applications.

To learn more, or to order now, go to [www.agilent.com/chem/polaris](http://www.agilent.com/chem/polaris)



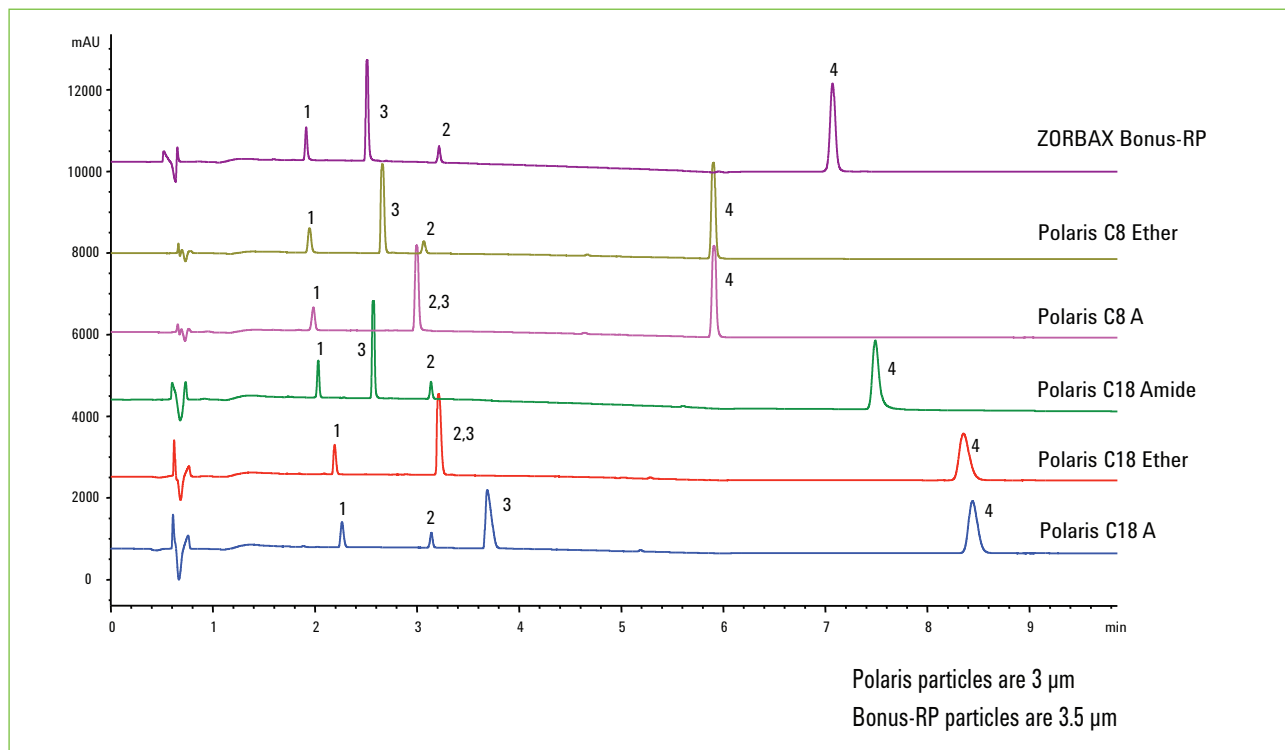
# Innovative chemistry that withstands the rigors of LC/MS

When it comes to working with polar compounds, Polaris high-throughput columns are physically and chemically up to the challenges of open access LC/MS. They are built to endure high-pressure gradient conditions. Plus, the structure of the Polaris embedded phases means no bonded phase leaching to compromise column lifetime or mass spec results.

ZORBAX Bonus-RP columns, SB-Aq columns, and the family of Polaris columns all have bonding modifications for enhanced retention of polar compounds. In addition, their stable bonded phases minimize column bleed, which can compromise mass spec results.

For LC/MS analysis of polar compounds, which requires a higher organic mobile phase, Agilent's HILIC Plus columns are an excellent complementary choice.

## Overlay of LC/MS Performance Test Mix



Aspartame, Cortisone, Reserpine and Dioctyl Phthalate were chosen by Tang et. al. to evaluate RP-LC and LC/MS system performance with a sample representative of molecules encountered in drug discovery\*. The compounds vary in polarity and molecular weight. In-house studies reveal that all these chemistries give good retention of Aspartame and good selectivity of Cortisone and Reserpine without lengthy retention of Dioctyl Phthalate.

Column Dimensions 4.6 x 50 mm  
Mobile Phase A: Water + 0.05% HCOOH  
Mobile Phase B: MeCN + 0.05% HCOOH  
Flow Rate = 1.0 ml/min  
Gradient 5 to 90% B in 5 minutes  
Keep constant at 90% B for 6.2 minutes  
Column Temperature 40 °C  
Detection 220 nm

1. Aspartame MW = 294 Log P = 2.135
2. Cortisone MW = 360 Log P = 1.295
3. Reserpine MW = 608 Log P = 3.704
4. Dioctyl Phthalate MW = 390 Log P = 8.706

\*Tang, L.; Fitch, W.L.; Alexander, M.S.; Dolan, J.W. *Anal. Chem.*, 2000, 72, 5211-5218.

## Ordering Information

### ZORBAX 80Å StableBond and Bonus-RP Rapid Resolution High Definition (RRHD), Stable to 1200 bar

Size (mm)	Particle Size (µm)	SB-Aq	Bonus-RP USP L60
<b>Standard Columns (no special hardware required)</b>			
2.1 x 150, RRHD, 1200 Bar	1.8	859700-914	859768-901
2.1 x 100, RRHD, 1200 Bar	1.8	858700-914	858768-901
2.1 x 50, RRHD, 1200 Bar	1.8	857700-914	857768-901
3.0 x 100, RRHD, 1200 bar	1.8	858700-314	
3.0 x 50, RRHD, 1200 bar	1.8	857700-314	

### ZORBAX 80Å StableBond Rapid Resolution High Throughput (RRHT), Stable to 600 bar

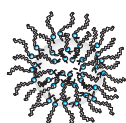
Size (mm)	Particle Size (µm)	SB-Aq	Bonus-RP USP L60
<b>Standard Columns (no special hardware required)</b>			
4.6 x 150, RRHT, 600 Bar	1.8	829975-914	
4.6 x 100, RRHT, 600 Bar	1.8	828975-914	828668-901
4.6 x 50, RRHT, 600 Bar	1.8	827975-914	827668-901
3.0 x 100, RRHT, 600 bar	1.8	828975-314	828668-301
3.0 x 50, RRHT, 600 bar	1.8		827668-301
2.1 x 100, RRHT, 600 bar	1.8	828700-914	828768-901
2.1 x 50, RRHT, 600 bar	1.8	827700-914	827768-901

### ZORBAX 80Å StableBond Rapid Resolution, 3.5 µm

Size (mm)	Particle Size (µm)	SB-Aq	Bonus-RP USP L60
<b>Standard Columns (no special hardware required)</b>			
4.6 x 150	3.5	863953-914	863668-901
4.6 x 100	3.5	861953-914	864668-901
4.6 x 50	3.5	835975-914	835668-901
3.0 x 150	3.5	863954-314	863668-301
3.0 x 100	3.5	861954-314	864668-301
2.1 x 150	3.5	830990-914	863700-901
2.1 x 100	3.5	861753-914	861768-901
2.1 x 50	3.5	871700-914	861700-901

### Polaris HPLC Columns

Size (mm)	Particle Size (µm)	Polaris C18-A	Polaris C8-A	Polaris C18-Ether	Polaris C8-Ether	Polaris Amide-C18	Polaris NH2	Polaris Si-A
4.6 x 150	5	A2000150X046	A2010150X046	A2020150X046	A2030150X046	A2006150X046	A2013150X046	A2003150X046
4.6 x 100	5	A2000100X046	A2010100X046			A2006100X046	A2013100X046	A2003100X046
4.6 x 50	5	A2000050X046		A2020050X046		A2006050X046	A2013050X046	A2003050X046
4.6 x 150	3	A2001150X046	A2011150X046			A2007150X046	A2014150X046	A2005150X046
4.6 x 100	3	A2001100X046	A2011100X046			A2007100X046	A2014100X046	A2005100X046
4.6 x 50	3	A2001050X046		A2021050X046	A2031050X046	A2007050X046	A2014050X046	A2005050X046
3.0 x 150	5	A2000150X030		A2020150X030	A2030150X030	A2006150X030	A2013150X030	A2003150X030
3.0 x 100	5	A2000100X030			A2030100X030	A2006100X030	A2013100X030	A2003100X030
3.0 x 50	5	A2000050X030				A2006050X030		A2003050X030
3.0 x 150	3	A2001150X030				A2007150X030	A2014150X030	A2005150X030
3.0 x 100	3	A2001100X030				A2007100X030	A2014100X030	A2005100X030
3.0 x 50	3	A2001050X030		A2021050X030	A2031050X030	A2007050X030	A2014050X030	A2005050X030
2.0 x 150	5	A2000150X020	A2010150X020	A2020150X020	A2030150X020	A2006150X020	A2013150X020	A2003150X020
2.0 x 100	5	A2000100X020				A2006100X020	A2013100X020	A2003100X020
2.0 x 50	5	A2000050X020	A2010050X020	A2020050X020	A2030050X020	A2006050X020	A2013050X020	
2.0 x 150	3	A2001150X020	A2011150X020	A2021150X020	A2031150X020	A2007150X020	A2014150X020	A2005150X020
2.0 x 100	3	A2001100X020		A2021100X020	A2031100X020	A2007100X020	A2014100X020	A2005100X020
2.0 x 50	3	A2001050X020	A2011050X020	A2021050X020	A2031050X020	A2007050X020	A2014050X020	A2005050X020



For a complete part number list and to learn more, or to order now, go to [www.agilent.com/chem/polaris](http://www.agilent.com/chem/polaris), [www.agilent.com/chem/bonusrp](http://www.agilent.com/chem/bonusrp) or [www.agilent.com/chem/stablebond](http://www.agilent.com/chem/stablebond)

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Whether you need a “workhorse” LC system for routine analysis or a sophisticated, high-resolution LC/MS system, the Agilent 1200 Infinity series has what you’re looking for.

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## Keeping you in command of your analyses

Agilent designs and manufactures columns to suit most techniques for small molecule, large molecule, and synthetic polymer analysis, allowing you to scale methods from conventional 5  $\mu\text{m}$ ... to “Fast LC” sub-2  $\mu\text{m}$ ... to prep.

You also have access to Agilent’s extensive applications library for faster method development – plus worldwide technical support, speedy problem resolution, and our global infrastructure and delivery network.

Agilent’s meticulous production oversight ensures column consistency and performance. With more than 40 years of experience in producing polymers and silica chemistries, our team is committed to continuously developing new column advances that make you most productive.

### For more information

To learn more about Agilent Polaris columns, visit us online at [www.agilent.com/chem/polaris](http://www.agilent.com/chem/polaris)

In the U.S. and Canada, call toll free: **1-800-227-9770**, option 3, then option 3 again

In other countries, please call your local Agilent Representative or Agilent Authorized Distributor – see [www.agilent.com/chem/contactus](http://www.agilent.com/chem/contactus)

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