

The Epic Line

High Density / High Resolution HPLC Columns

- Breakthrough High Density Bonding
- High Resolution
- Superior Base Deactivation
- Wide Range Performance
- Extended pH Range Stability
- Available in 3, 5, 10 and larger micron particles
- Columns from microbore to preparative

At ES Industries we have developed a new line of HPLC columns to meet the demands of the most challenging chromatographic applications. Our expertise in the bonding of stationary phases has yielded a new line of high performance HPLC packings. The superior performance for the new line HPLC column packing materials is the product of high density (HD) bonding. Through refinements in our process and catalyst development we have achieved monomeric bonding densities not currently available for commercial monomeric packings. With these techniques we have achieved bonding densities in excess of $4 \text{ } \mu\text{mol}/\text{m}^2$. This breakthrough HD methodology affords the HPLC chromatographer both the performance and flexibility to carry the HPLC analysis from the methods development stage through quality control implementation. With our Epic line of packings the chromatographer is now in control of the chromatography. The Epic series allows the chromatographer to make complete adjustments of organic modifier, buffer selection and pH range. By controlling these parameters development of high resolution rugged HPLC analysis are no longer the products of compromise.

We have applied our HD bonding to a number of stationary phases to give the chromatographer the ultimate in flexibility. All Epic products use an ultra-high purity metal free spherical silica support. In addition, all of the Epic products under go strict quality control testing using our specific test criteria as outlined in our Quality Focus Program.



INDUSTRIES

Epic C18 & Epic C8

Epic C18 is a highly base deactivated phase that produces the most inert silica C18 material available today. Because of the high density bonding levels (>4 μ mol/m²) this column demonstrates superior peak shapes for the most demanding tests, as seen in Figure 1 for the NIST column performance test. Epic C18 provides exceptional peak shape and selectivity over a wide pH range (pH 1-12). Epic C8 is the equivalent C8 product with high density bonding.

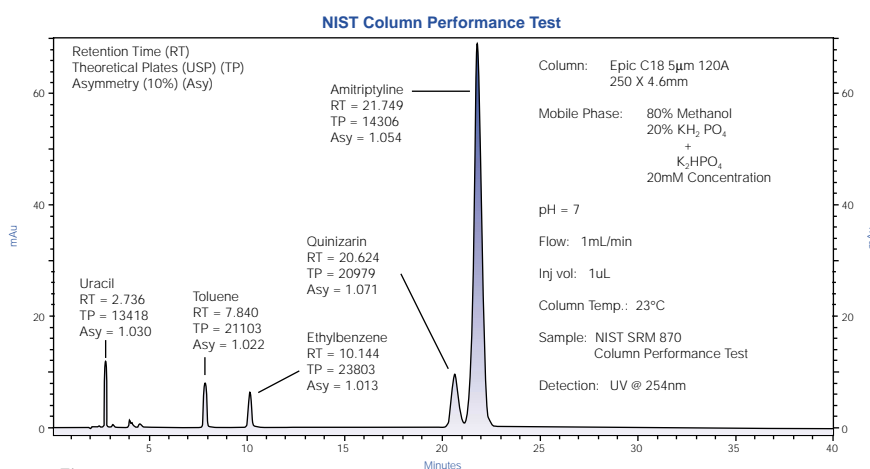


Figure 1

Epic C18

Pore Size: 120Å
Surface Area: 230m²/g
Carbon %: 18
pH range: 1 – 12

Epic C8

Pore Size: 120Å
Surface Area: 230m²/g
Carbon %: 10
pH range: 1 – 12

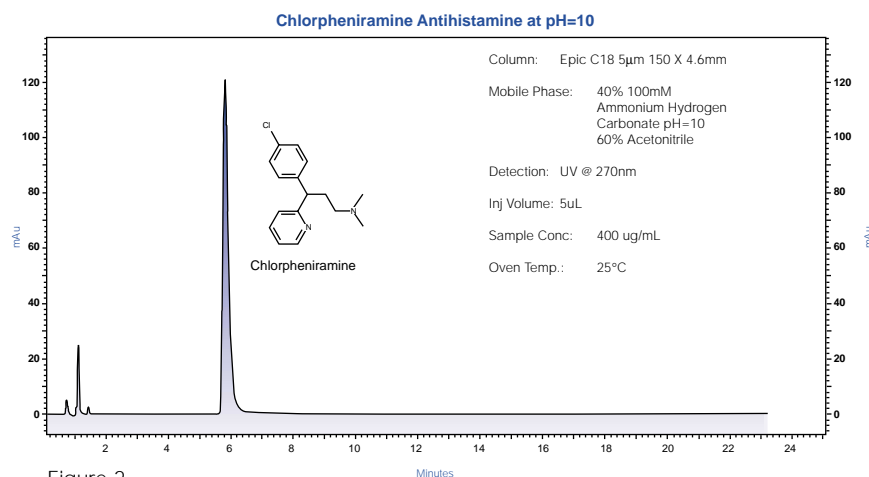


Figure 2

Ordering Information for Epic C18 3 μ

Length (cm)	ID 4.6mm	ID 4.0mm	ID 3.2mm	ID 2.0mm
5	115191-EC18	114191-EC18	11d191-EC18	112191-EC18
10	125191-EC18	124191-EC18	12d191-EC18	122191-EC18
15	135191-EC18	134191-EC18	13d191-EC18	132191-EC18

Ordering Information for Epic C18 5 μ

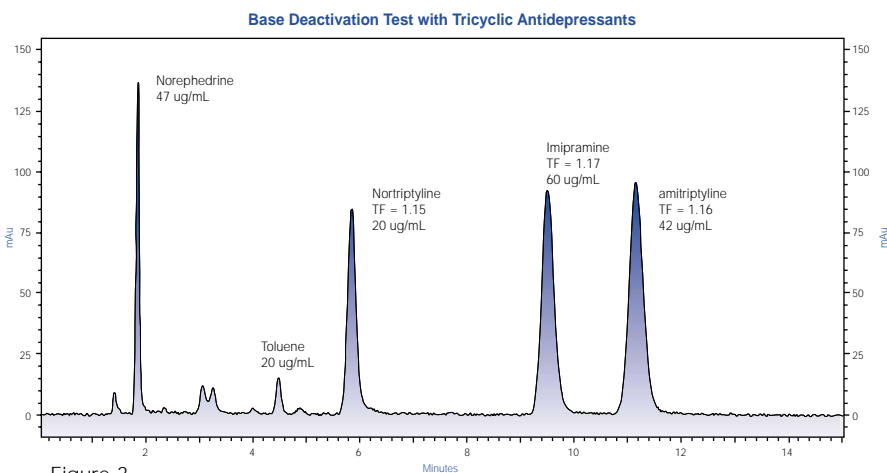
Length (cm)	ID 4.6mm	ID 4.0mm	ID 3.2mm	ID 2.0mm
5	115291-EC18	114291-EC18	11d291-EC18	112291-EC18
10	125291-EC18	124291-EC18	12d291-EC18	122291-EC18
15	135291-EC18	134291-EC18	13d291-EC18	132291-EC18
25	155291-EC18	154291-EC18	15d291-EC18	152291-EC18

Guard Column Cartridges

Catalog # 300100	Analytical Guard Cartridge Holder
Catalog # 300101-EC18	Epic C18 5 μ Analytical Guard Cartridges – Pack of 5

Epic C18 SD & Epic C4 SD

Epic C18 SD is a highly base deactivated high carbon super dense (SD) phase that is produced via a multiple step process. The first step involves the HD bonding of monomeric C18 reagent. The second step utilizes a proprietary multiple endcapping bonding process that produces highly base deactivated columns. Our Quality Focus base deactivation test is shown in Figure 3 and demonstrates the superior base deactivation for the column. The Epic C18 SD product, as a result of our special bonding treatment, is highly hydrophobic and exceptionally inert for the analysis of both acids and bases. With our super dense bonding this product also has a wide pH range (1-12). Epic C4 SD is a C4 with high bonding density.



Epic C18-SD

Pore Size: 120Å
 Surface Area: 350m²/g
 Carbon %: 25
 pH range: 1 – 12

Epic C18 SD 150 X 4.6mm

Mobile Phase: 80% Methanol
 20% KH₂PO₄ 25mM
 pH = 7.0
 Flow Rate: 1.0 mL/min.
 Detection: UV @ 215nm
 Inj. Volume: 5uL

Epic C4-SD

Pore Size: 120Å
 Surface Area: 350m²/g
 Carbon %: 8
 pH range: 1 – 12

Figure 3

Ordering Information for Epic C18 SD 3µ

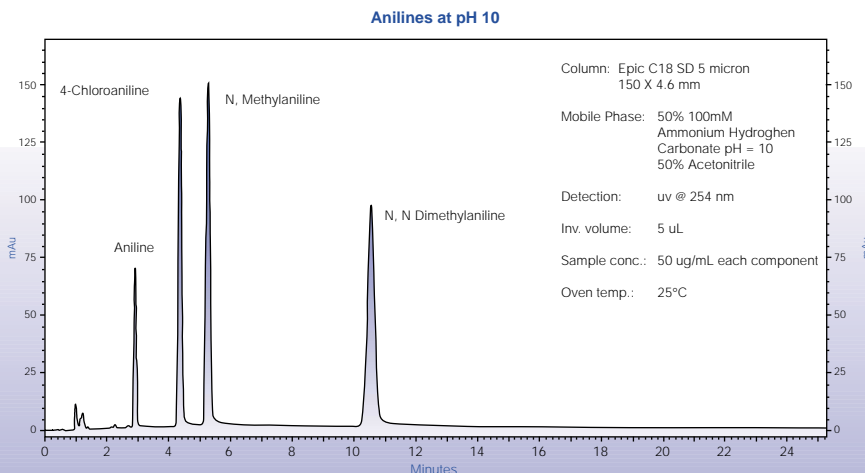
Length (cm)	ID 4.6mm	ID 4.0mm	ID 3.2mm	ID 2.0mm
5	115191-EC18-SD	114191-EC18-SD	11d191-EC18-SD	112191-EC18-SD
10	125191-EC18-SD	124191-EC18-SD	12d191-EC18-SD	122191-EC18-SD
15	135191-EC18-SD	134191-EC18-SD	13d191-EC18-SD	132191-EC18-SD

Ordering Information for Epic C18 SD 5µ

Length (cm)	ID 4.6mm	ID 4.0mm	ID 3.2mm	ID 2.0mm
5	115291-EC18-SD	114291-EC18-SD	11d291-EC18-SD	112291-EC18-SD
10	125291-EC18-SD	124291-EC18-SD	12d291-EC18-SD	122291-EC18-SD
15	135291-EC18-SD	134291-EC18-SD	13d291-EC18-SD	132291-EC18-SD
25	155291-EC18-SD	154291-EC18-SD	15d291-EC18-SD	152291-EC18-SD

Guard Column Cartridges

Catalog # 300100	Analytical Guard Cartridge Holder
Catalog # 300101-EC18SD	Epic C18 SD 5µ Analytical Guard Cartridges – Pack of 5



Column: Epic C18 SD 5 micron
 150 X 4.6 mm
 Mobile Phase: 50% 100mM
 Ammonium Hydrogen
 Carbonate pH = 10
 50% Acetonitrile
 Detection: uv @ 254 nm
 Inv. volume: 5 uL
 Sample conc.: 50 ug/mL each component
 Oven temp.: 25°C

**To Order Call
 800-356-6140**

Figure 4

Epic Polar

Epic Polar is a high density packing specifically engineered for the retention of polar analytes. The retention characteristics of Epic Polar can be seen in separation of 11 highly polar organic acids shown in Figure 5. This phase provides for superior hydrophobic performance even with 100% aqueous mobile phases.

Epic Polar

Pore Size: 120Å
 Surface Area: 230m²/g
 Carbon %: 18
 pH range: 1 – 12

Ordering Information for Epic Polar 3μ

Length (cm)	ID 4.6mm	ID 4.0mm	ID 3.2mm	ID 2.0mm
5	115191-EPO	114191-EPO	11d191-EPO	112191-EPO
10	125191-EPO	124191-EPO	12d191-EPO	122191-EPO
15	135191-EPO	134191-EPO	13d191-EPO	132191-EPO

Ordering Information for Epic Polar 5μ

Length (cm)	ID 4.6mm	ID 4.0mm	ID 3.2mm	ID 2.0mm
5	115291-EPO	114291-EPO	11d291-EPO	112291-EPO
10	125291-EPO	124291-EPO	12d291-EPO	122291-EPO
15	135291-EPO	134291-EPO	13d291-EPO	132291-EPO
25	155291-EPO	154291-EPO	15d291-EPO	152291-EPO

Guard Column Cartridges

Catalog # 300100	Analytical Guard Cartridge Holder
Catalog # 300101-EPO	Epic Polar 5μ Analytical Guard Cartridges – Pack of 5

Low Molecular Weight Polar Organic Acids on Epic Polar

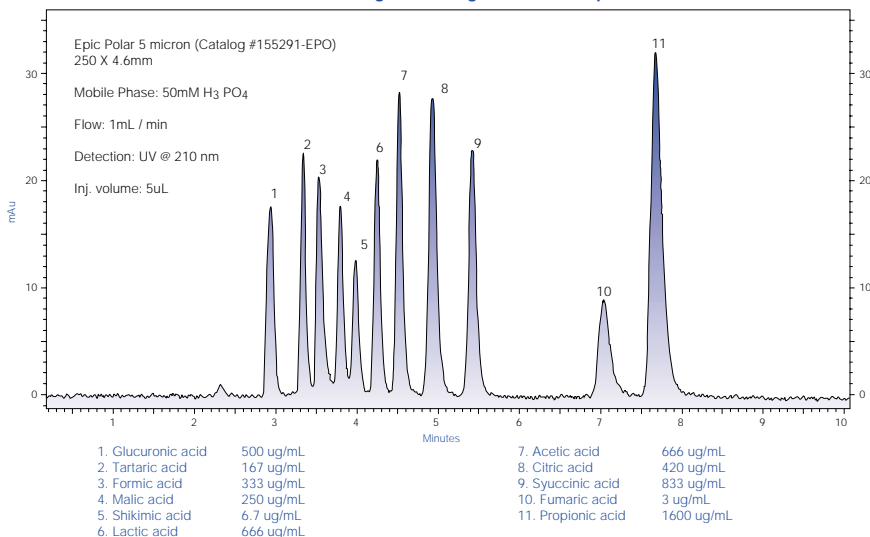


Figure 5

PHENOLS

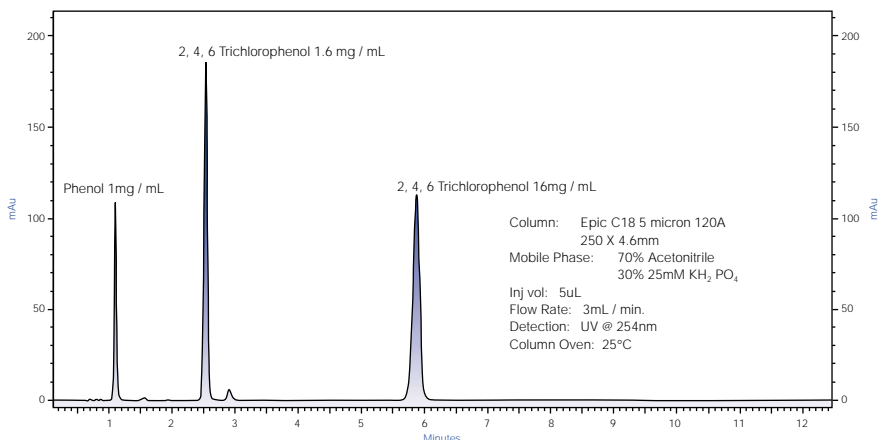


Figure 6

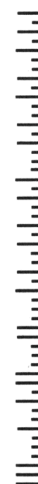
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Epic C18 MS

Epic C18 MS is specifically engineered for the demands of LC-MS. It provides superior retention even at high organic levels. In addition, it is compatible with all LC-MS mobile phases and buffer systems. This column provides advanced high performance/high resolution LC-MS separations in a narrow bore short column formats.

Epic C18-MS

Pore Size: 120Å
 Surface Area: 350m/g
 Carbon %: 22
 pH range: 1 – 12

Ordering Information for Epic C18 MS 3µ

Length (cm)	ID 4.6mm	ID 4.0mm	ID 3.2mm	ID 2.0mm
5	115191-EC18-MS	114191-EC18-MS	11d191-EC18-MS	112191-EC18-MS
10	125191-EC18-MS	124191-EC18-MS	12d191-EC18-MS	122191-EC18-MS
15	135191-EC18-MS	134191-EC18-MS	13d191-EC18-MS	132191-EC18-MS

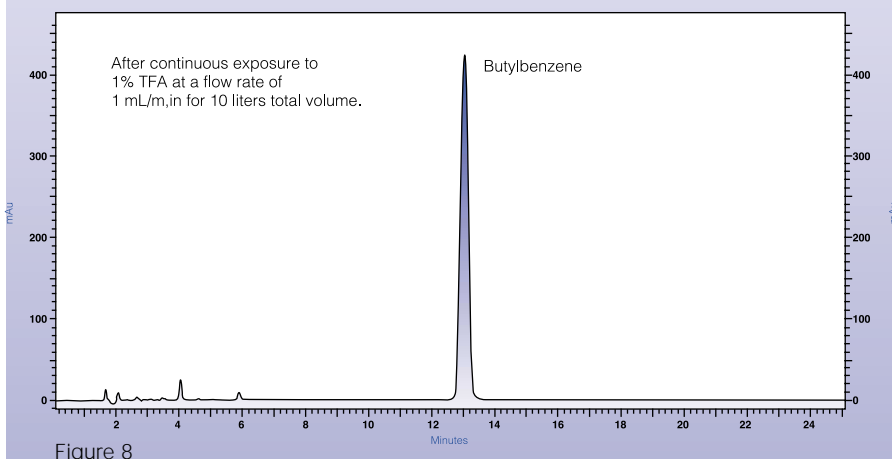
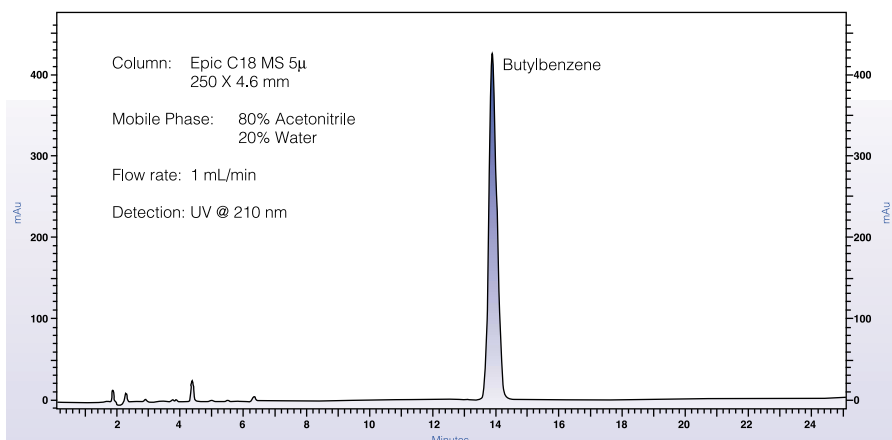
Ordering Information for Epic C18 MS 5µ

Length (cm)	ID 4.6mm	ID 4.0mm	ID 3.2mm	ID 2.0mm
5	115291-EC18-MS	114291-EC18-MS	11d291-EC18-MS	112291-EC18-MS
10	125291-EC18-MS	124291-EC18-MS	12d291-EC18-MS	122291-EC18-MS
15	135291-EC18-MS	134291-EC18-MS	13d291-EC18-MS	132291-EC18-MS
25	155291-EC18-MS	154291-EC18-MS	15d291-EC18-MS	152291-EC18-MS

Guard Column Cartridges

Catalog # 300100	Analytical Guard Cartridge Holder
Catalog # 300101-EC18MS	Epic C18 MS 5µ Analytical Guard Cartridges – Pack of 5

TFA Stability Test



ES INDUSTRIES • 701 South Route 73, West Berlin, NJ 08091
 (856) 753-8400 • Fax (856) 753-8484

Please indicate how we may be of further assistance to you.

- High Density C18 Reverse Phase
- Fluorinated Phases
- LC/MS Columns
- Preparative / Process Materials
- Polar Separations
- Normal Phase Materials
- Other Selective Phases

My application is:

Name: _____ Title: _____

Company: _____

Address: _____

City: _____ State: _____ Zip: _____

Country: _____ Telephone: _____

E-mail: _____

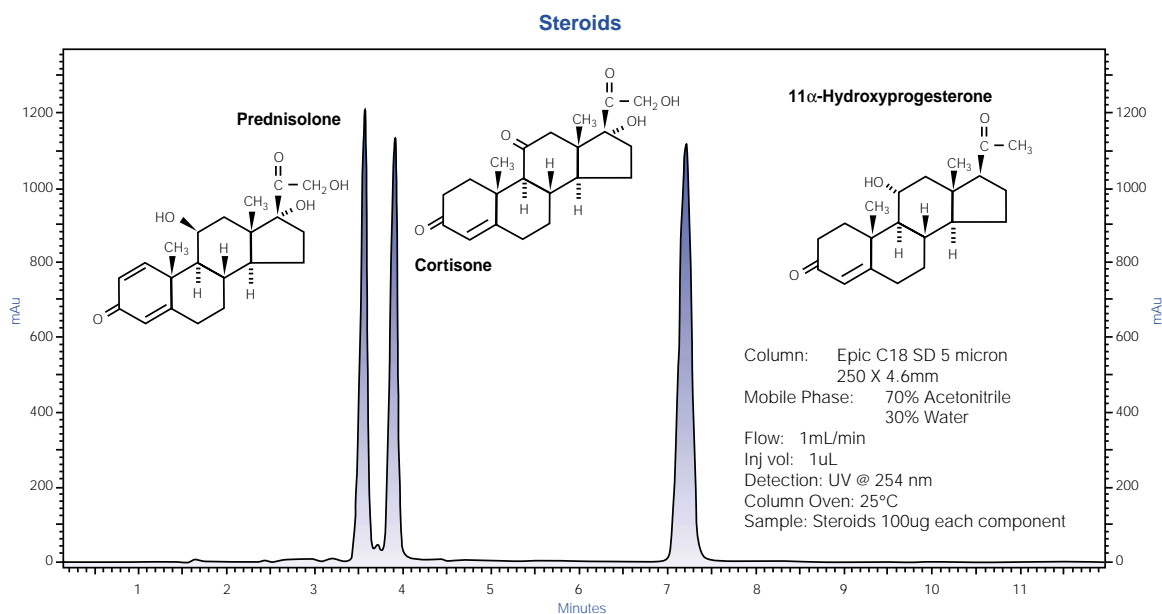


Figure 9

Epic Method Development Kits

Catalog # Epic-MDK1

Epic Method Development Kit #1 Contains one each of the following HPLC columns:

Epic C18 5 μ 5cm X 4.6mm

Epic C18SD 5 μ 5cm X 4.6mm

Epic Polar 5 μ 5cm X 4.6mm

Catalog # Epic-MDK2

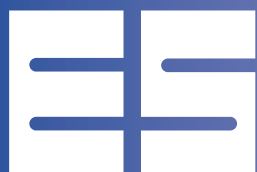
Epic Method Development Kit #2 Contains one each of the following HPLC Columns:

Epic C18 5 μ 15cm X 4.6mm

Epic C18SD 5 μ 15cm X 4.6mm

Epic Polar 5 μ 15cm X 4.6mm

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