

Alltech Alltima™ HP

HIGH PERFORMANCE HPLC COLUMNS

- **Better Peak Symmetry** - high purity silica eliminates peak tailing problems
- **Long Column Life** - exceptional column stability minimizes downtime and reduces cost
- **Ideal for LC/MS or Critical Analysis** - low to no detectable column bleed
- **Variety of Phases and Formats** - optimizes retention, resolution, & analysis time



Alltech

Brochure #490

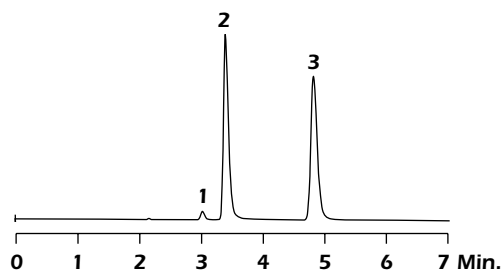
Alltima™ HP = High Performance

High Performance from High Purity Silica

Alltech Alltima™ HP Specifications

Phase	Description	Pore Size	Surface Area	End Capped	Carbon Loading	100% Aqueous Compatible	MS Compatible
C18	For classic reversed phase applications	190Å	200m ² /g	Yes	12%	No	Yes
C18 AQ	100% water wettable	100Å	450m ² /g	Yes	20%	Yes	Yes
EPS C18	Reversed phase with extended polar selectivity	190Å	200m ² /g	No	4%	Yes	Yes
C18 HiLoad	Higher carbon load for stronger retention	100Å	450m ² /g	Yes	24%	No	Yes
C18 Amide	Low bleed polar-embedded phase compatible with LC/MS	190Å	200m ² /g	Yes	12%	Yes	Yes
C8	For reversed phase applications where C18 is too retentive	190Å	200m ² /g	Yes	8%	Yes	Yes
Cyano	Stable, long-life cyano phase	190Å	200m ² /g	Yes	4%	Yes	Yes
Silica	For general purpose normal phase applications	100Å	450m ² /g	n/a	—	Yes	Yes
HILIC	Hydrophilic Interaction Chromatography for highly polar analytes	120Å	230m ² /g	n/a	—	Yes	Yes

Alltima™ HP C18 Column Symmetry at pH 7.0



Peak	USP Tailing*
1. Diphenhydramine	1.29
2. Nortriptyline	1.41
3. Amitriptyline	1.27

* Tailing Factor was determined in accordance with USP method.

Column: Alltima™ HP C18, 5µm, 150 x 4.6mm

Mobile Phase: 25mM Potassium Phosphate, pH 7.0:Methanol (15:85)

Flow Rate: 1.0mL/min

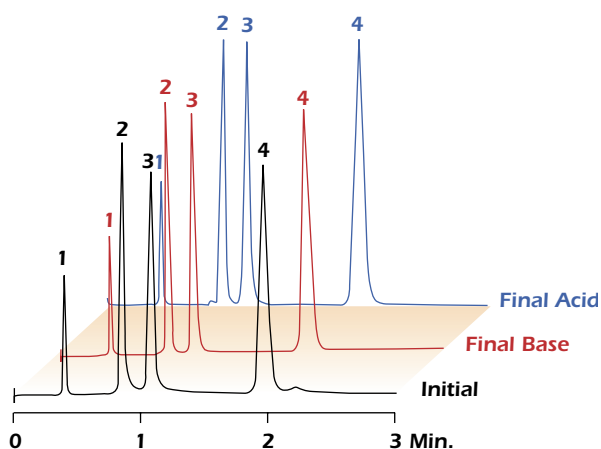
Detector: UV at 254nm



The Alltima™ HP Family Demonstrates Excellent Peak Symmetry of Highly Basic Analytes at pH 7.0

Alltima™ HP = High Performance

Alltima™ HP C18 Column Stability at pH 1.0 and pH 10



Retention Times

	CHROM-10249	CHROM-10250	CHROM-10252
1. Uracil	0.56	0.55	0.55
2. Phenol	0.82	0.81	0.81
3. N,N-Diethyl-m-Toluamide	1.08	1.08	1.08
4. Toluene	1.89	1.88	1.89

Column: Alltima™ HP C18, 5µm, 50 x 4.6mm

Mobile Phase: Acetonitrile:Water (58:42)

Flow Rate: 1.0mL/min

Detector: UV at 254nm

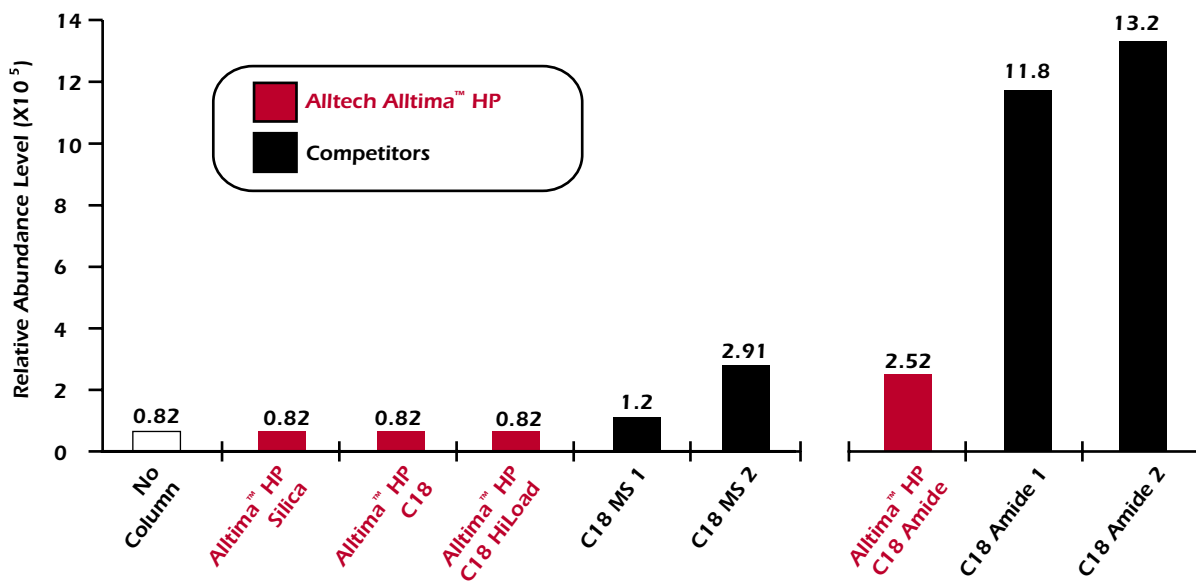
Final Acid: washed with 24,000 column volumes of Acetonitrile: Dilute Sulfuric Acid, pH 1.0 (50:50) at 60°C.

Final Base: washed with 24,000 column volumes of Acetonitrile: Ammonium Hydroxide, pH 10 (50:50) at 20°C.



The Alltima™ HP family demonstrates exceptional stability from pH 1.0 to 10. Our long life columns reduce your cost and minimize down time!

Column Bleed by ESI-MS — Alltima™ HP vs. Competitive Columns



The Alltima™ HP Family demonstrates low bleed — even our C18 Amide, polar-embedded packing has low column bleed.

Alltima™ HP = High Performance

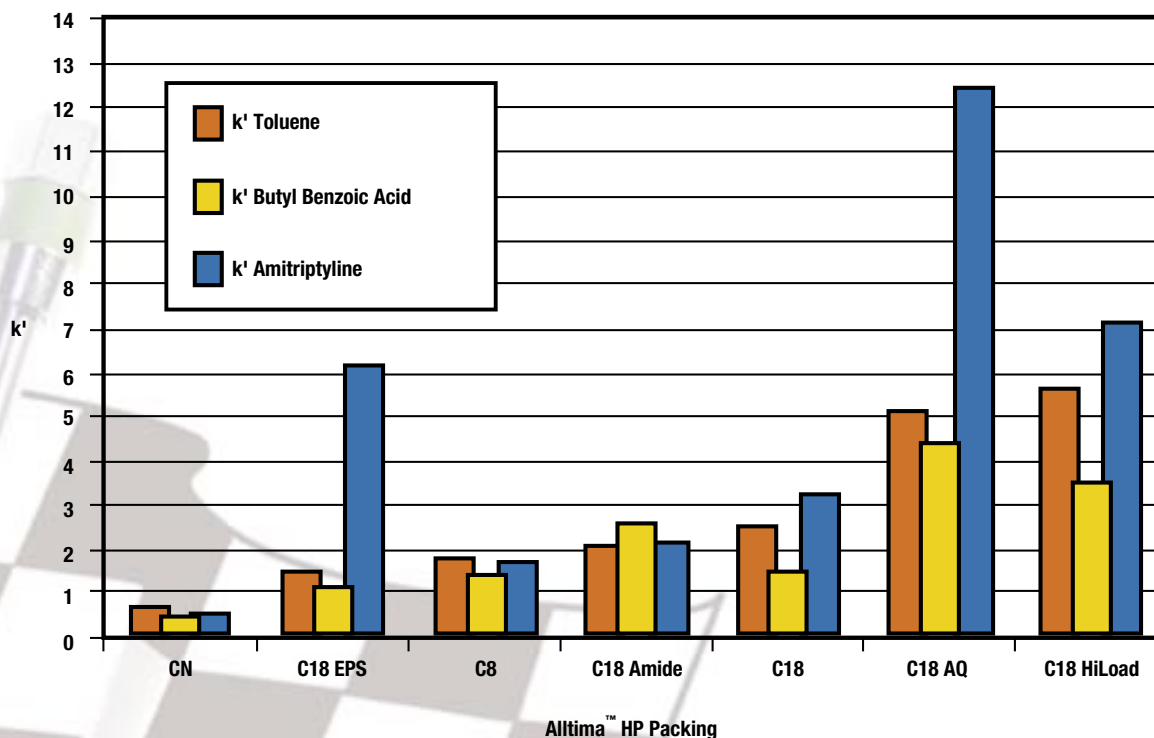
Reversed Phase Selectivity Options in One Product Family

- C18:** ▪ Classic reversed-phase retention and selectivity for general reversed-phase applications
- C18 AQ:** ▪ 100% water wettable and high carbon loading for greater mobile phase range
- EPS C18:** ▪ Unique selectivity that succeeds when traditional reversed-phase columns fail
▪ Greater retention and enhanced peak symmetry for polar compounds
▪ Ideal for metabolite analysis
- C18 HiLoad:** ▪ Superior retention and loadability for resolution of complex samples
- C18 Amide:** ▪ The first polar-embedded packing ideal for LCMS
▪ Excellent peak shape without phase bleed
▪ Ideal for basic compounds in neutral to alkaline pH
- C8:** ▪ Less hydrophobic retention than C18 for faster analysis times



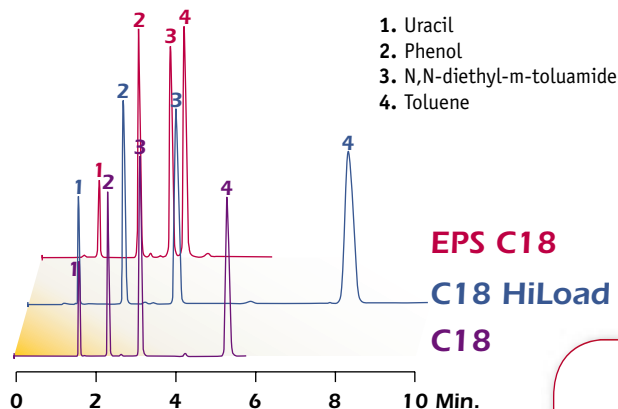
Alltima™ HP combines our best phase chemistries with high purity silica. The result is one product family with selectivity and performance needed to overcome your challenging separation needs.

Alltima™ HP Selectivity



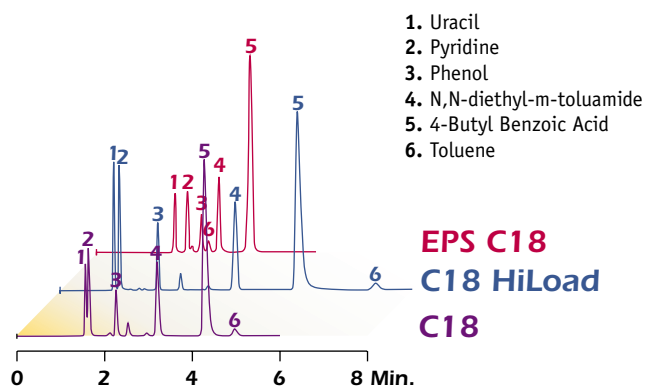
* See chromatograms on facing page for experimental data and conditions.

Reversed-Phase Test Mix



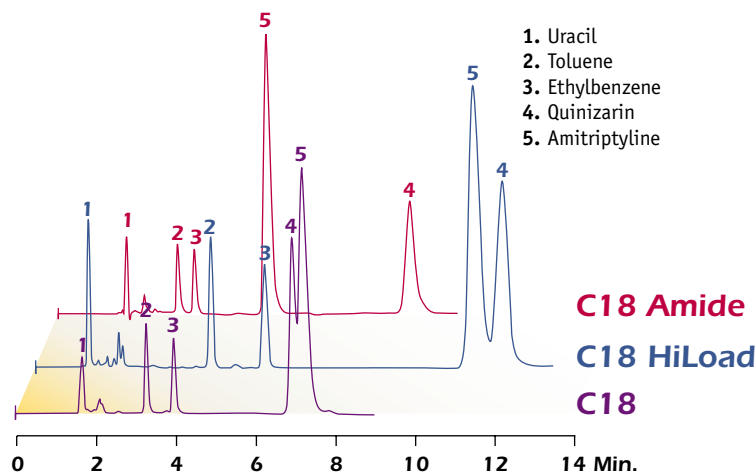
Column: 150 x 4.6mm
Mobile Phase: Water:CH₃CN (42:58)
Column Temp: Ambient (22°C)
Flow Rate: 1.0mL/min
Injection Vol.: 5µL
Detector: UV at 254nm

Acid, Base, and Neutral Test Mix



Column: 150 x 4.6mm
Mobile Phase: 50mM KH₂PO₄, pH 3.0:CH₃CN (40:60)
Column Temp: Ambient (22°C)
Flow Rate: 1.0mL/min
Injection Vol.: 5µL
Detector: UV at 254nm

Standard Reference (SRM870) Test Mix



Column: 150 x 4.6mm
Mobile Phase: 20mM K₂HPO₄, pH 7.0:CH₃OH (20:80)
Column Temp: Ambient (22°C)
Flow Rate: 1.0mL/min
Injection Vol.: 5µL
Detector: UV at 254nm

Alltima™ HP = High Performance

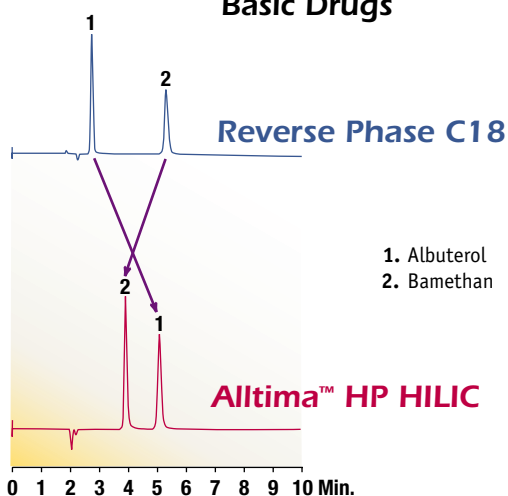
Additional Phases

- Cyano:**
- Unsurpassed stability
 - More reproducible separations than silica for normal phase applications
 - Ideal for basic drug analysis

- Silica:**
- Normal phase

- HILIC:**
- High purity silica optimized for HILIC separations
 - LC/MS compatible
 - Available in 1.5µm particle size

Basic Drugs



1. Albuterol
2. Bamethan

CHROM
10949

CHROM
10462

Alltima™ HP HILIC

Column: Alltima™ HP HILIC, 5µm, 150 x 4.6mm (Part No. 86464)

Prevail™ C18, 5µm, 150 x 4.6mm (Part No. 99208)

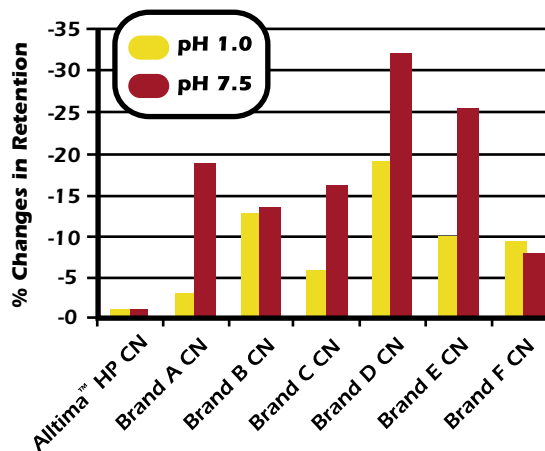
Mobile Phase: Acetonitrile:0.5M Ammonium Formate, pH 3.0 (85:15)
0.5M Ammonium Formate, pH 3.0:
CH₃CN (88:12)

Flow Rate: 1.0mL/min

Detector: UV at 220nm

Use Alltima™ HP HILIC's alternate selectivity for greater separation possibilities

Alltima™ HP Cyano — Much More Stable than Other Cyanos



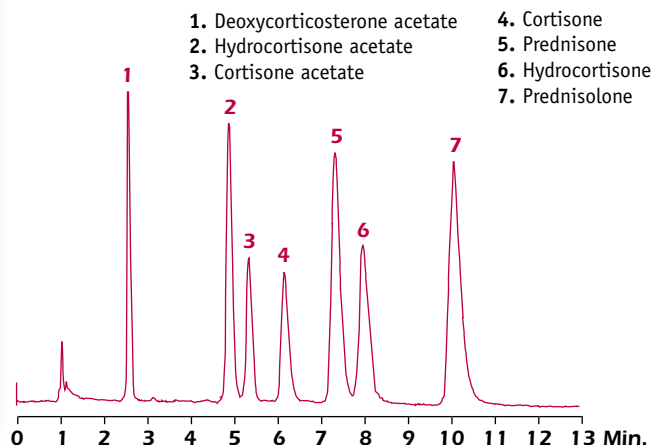
QC D4 Test: 70:30 H₂O/CH₃CN, 1.0mL/min, UV 254nm, 5µL D4Mix, Column 150 x 4.6mm, 22°C

pH 1.0 Stability: Flushed with H₂SO₄ pH 1.0:Acetonitrile 50:50 at 1.0mL/min for 3 days

pH 7.5 Stability: Flushed with 20mM K₂HPO₄ pH 7.5:Acetonitrile 50:50 at 1.0mL/min for 3 days

Corticosteroids

CHROM
10391



1. Deoxycorticosterone acetate
2. Hydrocortisone acetate
3. Cortisone acetate
4. Cortisone
5. Prednisone
6. Hydrocortisone
7. Prednisolone

Column: Alltima™ HP CN, 5µm, 150 x 4.6mm (Part No. 87769)

Mobile Phase: Hexane:Isopropanol (93.7:6.3)

Flow Rate: 2.0 mL/min

Column Temp.: 35°C

Detector: UV at 254nm

Altecnica™ TTP = High Performance

Ordering Information

Analytical - Quality, Reproducible LC Analysis



PARTICLE SIZE	ID x LENGTH (MM)	C18 PART No.	C18 AQ PART No.	EPS C18 PART No.	C18 HiLOAD PART No.	C18 AMIDE PART No.	C8 PART No.	CYANO PART No.	SILICA PART No.	HILIC PART No.	PRICE
3µm	4.6 x 50	—	—	—	—	—	—	—	—	86460	
	2.1 x 50	—	—	—	—	—	—	—	—	86461	
	4.6 x 100	87667	87807	87703	87685	87721	87739	87757	87785	—	
	2.1 x 100	87669	87809	87705	87687	87723	87741	87759	87787	—	
	4.6 x 150	87668	87808	87704	87686	87722	87740	87758	87786	86462	
	2.1 x 150	87670	87810	87706	87688	87724	87742	87760	87788	86463	
5µm	4.6 x 150	87679	87819	87715	87697	87733	87751	87769	87797	86464	
	2.1 x 150	87681	87821	87717	87699	87735	87753	87781	87799	86465	
	4.6 x 250	87680	87820	87716	87698	87734	87752	87780	87798	86466	
	2.1 x 250	87682	87822	87718	87700	87736	87754	87782	87802	—	

Rocket™ - Fast LC Analysis



PARTICLE SIZE	ID x LENGTH (MM)	C18 PART No.	C18 AQ PART No.	EPS C18 PART No.	C18 HiLOAD PART No.	C18 AMIDE PART No.	C8 PART No.	CYANO PART No.	SILICA PART No.	HILIC PART No.	PRICE
1.5µm	7 x 33	—	—	—	—	—	—	—	—	86467	
	7 x 53	—	—	—	—	—	—	—	—	86468	
3µm	7 x 33	87671	87811	87707	87689	87725	87743	87761	87789	86469	
	7 x 53	87672	87812	87708	87690	87726	87744	87762	87790	86470	

Expedite™ - Ideal for LC/MS



PARTICLE SIZE	ID x LENGTH (MM)	C18 PART No.	C18 AQ PART No.	EPS C18 PART No.	C18 HiLOAD PART No.	C18 AMIDE PART No.	C8 PART No.	CYANO PART No.	SILICA PART No.	HILIC PART No.	PRICE
1.5µm	2.1 x 20	—	—	—	—	—	—	—	—	86471	
	4.6 x 20	—	—	—	—	—	—	—	—	86472	
3µm	2.1 x 10	87673	87813	87709	87691	87727	87745	87763	87791	86473	
	4.6 x 10	87675	87815	87711	87693	87729	87747	87765	87793	86474	
	2.1 x 20	87674	87814	87710	87692	87728	87746	87764	87792	86475	
	4.6 x 20	87676	87816	87712	87694	87730	87748	87766	87794	86476	

All-Guard™ Cartridges & Holder



DESCRIPTION	ID x LENGTH (MM)	C18 PART No.	C18 AQ PART No.	EPS C18 PART No.	C18 HiLOAD PART No.	C18 AMIDE PART No.	C8 PART No.	CYANO PART No.	SILICA PART No.	HILIC PART No.	PRICE
Cartridges	2.1 x 7.5	87683	87823	87719	87701	87737	87755	87783	87803	86479	
5µm	4.6 x 7.5	87684	87824	87720	87702	87738	87756	87784	87804	86480	
Holder	80101										



Whether you are developing a new method, or just not satisfied with an existing separation, the Alltima™ HP Family provides the tool to optimize your separation.

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Visit www.chromatography.com for the latest in technical information and applications.

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