

# 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 #490A**

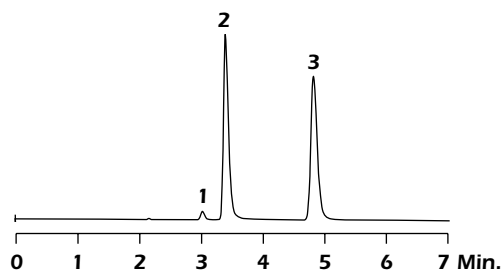
# Alltima™ HP = High Performance

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

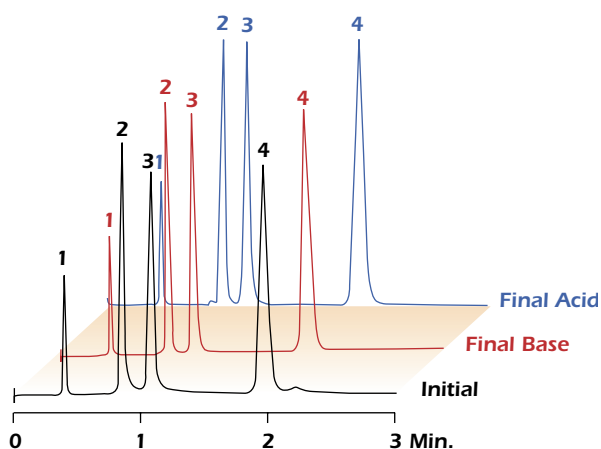
**Column:** Alltima™ HP C18, 5µm, 150 x 4.6mm  
**Mobile Phase:** 25mM Potassium Phosphate, pH 7.0: Methanol (15:85)  
**Flow Rate:** 1.0mL/min  
**Detector:** UV at 254nm



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

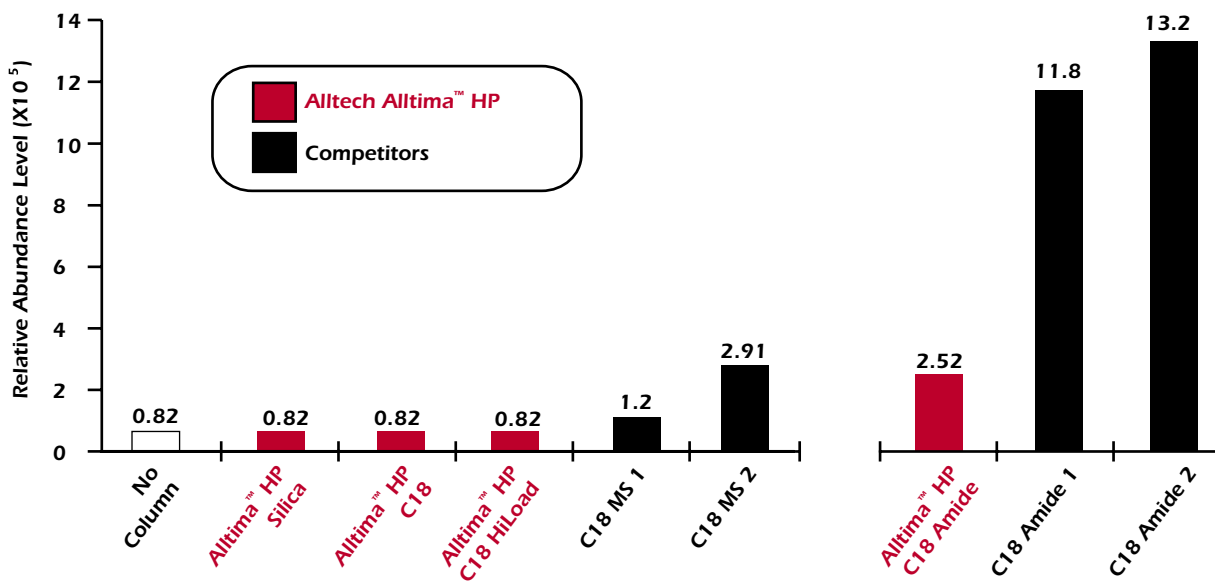
**Final Acid:** washed with 24,000 column volumes of Acetonitrile: Dilute Sulfuric Acid, pH 1.0 (50:50) at 60°C.

**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*

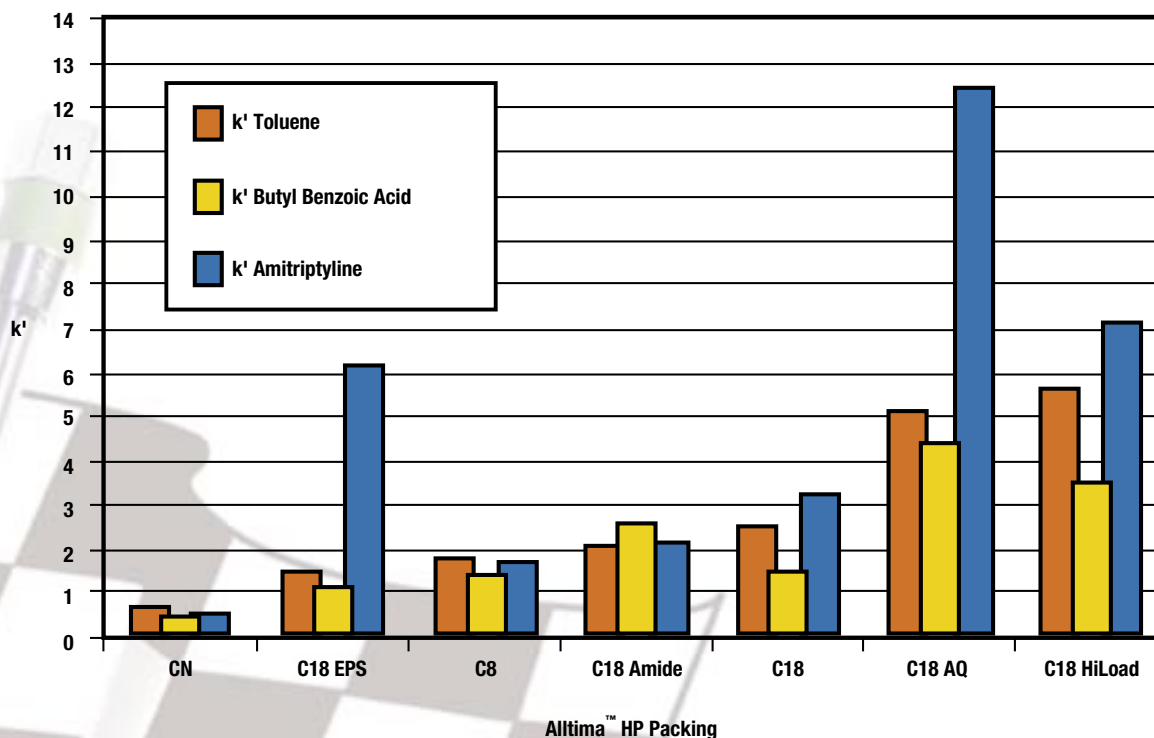
## Reversed Phase Selectivity Options in One Product Family

- 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.**

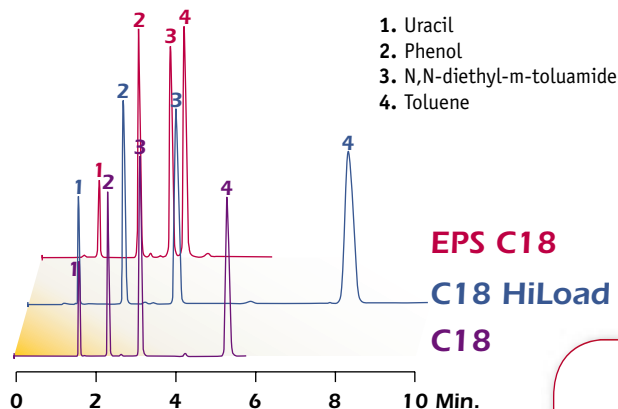
### Alltima™ HP Selectivity



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

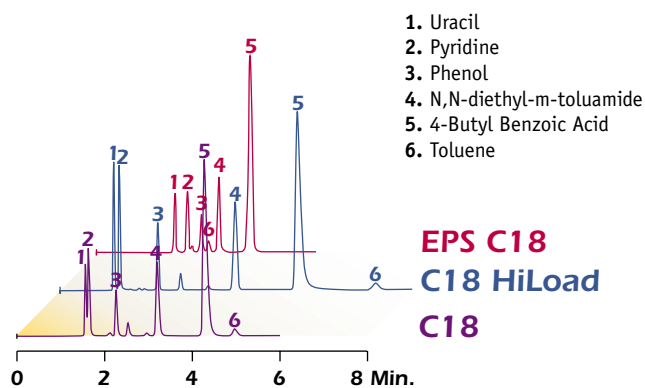
**Alltech**

## Reversed-Phase Test Mix



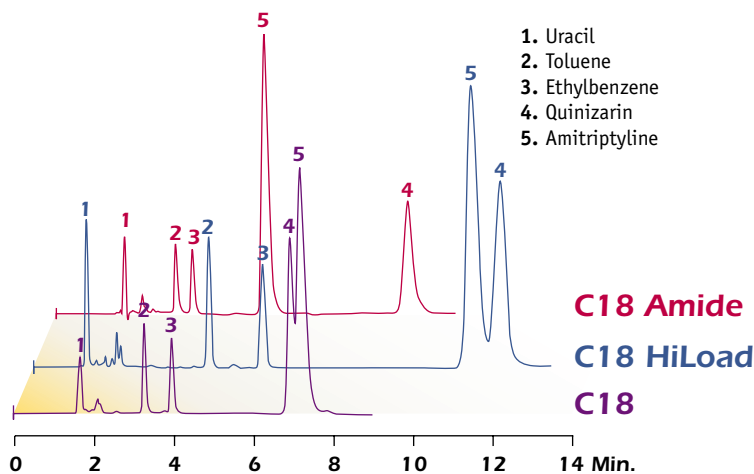
**Column:** 150 x 4.6mm  
**Mobile Phase:** Water:CH<sub>3</sub>CN (42:58)  
**Column Temp:** Ambient (22°C)  
**Flow Rate:** 1.0mL/min  
**Injection Vol.:** 5µL  
**Detector:** UV at 254nm

## Acid, Base, and Neutral Test Mix



**Column:** 150 x 4.6mm  
**Mobile Phase:** 50mM KH<sub>2</sub>PO<sub>4</sub>, pH 3.0:CH<sub>3</sub>CN (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 K<sub>2</sub>HPO<sub>4</sub>, pH 7.0:CH<sub>3</sub>OH (20:80)  
**Column Temp:** Ambient (22°C)  
**Flow Rate:** 1.0mL/min  
**Injection Vol.:** 5µL  
**Detector:** UV at 254nm

# Alltima™ HP = High Performance

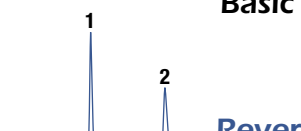
## Additional Phases

- 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



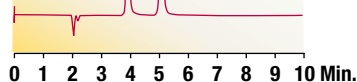
Reverse-Phase C18

1. Albuterol
2. Bamethan

CHROM-10949

CHROM-10462

### Alltima™ HP HILIC



**Column:** Prevail™ C18, 5µm, 150 x 4.6mm (Part No. 99208)  
Alltima™ HP HILIC, 5µm, 150 x 4.6mm (Part No. 86464)

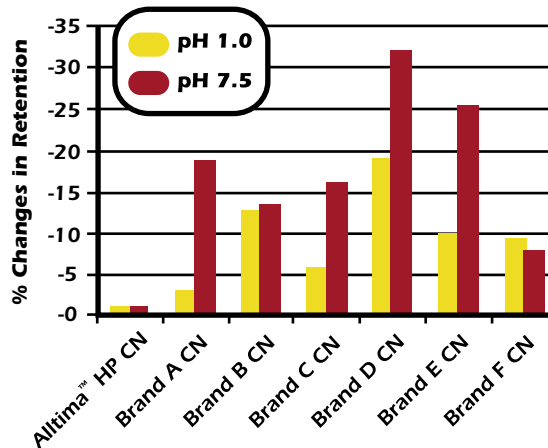
**Mobile Phase:** 0.5M Ammonium Formate, pH 3.0: CH<sub>3</sub>CN (88:12)  
Acetonitrile:0.5M Ammonium Formate, pH 3.0 (85:15)

**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



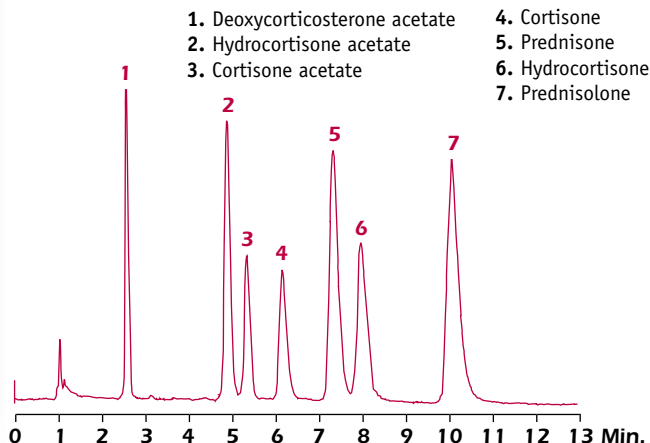
**QC D4 Test:** 70:30 H<sub>2</sub>O/CH<sub>3</sub>CN, 1.0mL/min, UV 254nm, 5µL D4 Mix, Column 150 x 4.6mm, 22°C

**pH 1.0 Stability:** Flushed with H<sub>2</sub>SO<sub>4</sub> pH1.0:Acetonitrile 50:50 at 1.0mL/min for 3 days

**pH 7.5 Stability:** Flushed with 20mM K<sub>2</sub>HPO<sub>4</sub> pH7.5:Acetonitrile 50:50 at 1.0mL/min for 3 days

### Corticosteroids

CHROM-10391



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

**Mobile Phase:** Hexane:Isopropanol (93.7:6.3)

**Flow Rate:** 2.0mL/min

**Column Temp.:** 35°C

**Detector:** UV at 254nm

*Alltech™ HP = 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
<b>3µm</b>	4.6 x 50	—	—	—	—	—	—	—	—	<b>86460</b>	
	2.1 x 50	—	—	—	—	—	—	—	—	<b>86461</b>	
	4.6 x 100	<b>87667</b>	<b>87807</b>	<b>87703</b>	<b>87685</b>	<b>87721</b>	<b>87739</b>	<b>87757</b>	<b>87785</b>	—	
	2.1 x 100	<b>87669</b>	<b>87809</b>	<b>87705</b>	<b>87687</b>	<b>87723</b>	<b>87741</b>	<b>87759</b>	<b>87787</b>	—	
	4.6 x 150	<b>87668</b>	<b>87808</b>	<b>87704</b>	<b>87686</b>	<b>87722</b>	<b>87740</b>	<b>87758</b>	<b>87786</b>	<b>86462</b>	
	2.1 x 150	<b>87670</b>	<b>87810</b>	<b>87706</b>	<b>87688</b>	<b>87724</b>	<b>87742</b>	<b>87760</b>	<b>87788</b>	<b>86463</b>	
<b>5µm</b>	4.6 x 150	<b>87679</b>	<b>87819</b>	<b>87715</b>	<b>87697</b>	<b>87733</b>	<b>87751</b>	<b>87769</b>	<b>87797</b>	<b>86464</b>	
	2.1 x 150	<b>87681</b>	<b>87821</b>	<b>87717</b>	<b>87699</b>	<b>87735</b>	<b>87753</b>	<b>87781</b>	<b>87799</b>	<b>86465</b>	
	4.6 x 250	<b>87680</b>	<b>87820</b>	<b>87716</b>	<b>87698</b>	<b>87734</b>	<b>87752</b>	<b>87780</b>	<b>87798</b>	<b>86466</b>	
	2.1 x 250	<b>87682</b>	<b>87822</b>	<b>87718</b>	<b>87700</b>	<b>87736</b>	<b>87754</b>	<b>87782</b>	<b>87802</b>	—	

### 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
<b>1.5µm</b>	7 x 33	—	—	—	—	—	—	—	—	<b>86467</b>	
	7 x 53	—	—	—	—	—	—	—	—	<b>86468</b>	
<b>3µm</b>	7 x 33	<b>87671</b>	<b>87811</b>	<b>87707</b>	<b>87689</b>	<b>87725</b>	<b>87743</b>	<b>87761</b>	<b>87789</b>	<b>86469</b>	
	7 x 53	<b>87672</b>	<b>87812</b>	<b>87708</b>	<b>87690</b>	<b>87726</b>	<b>87744</b>	<b>87762</b>	<b>87790</b>	<b>86470</b>	

### 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
<b>1.5µm</b>	2.1 x 20	—	—	—	—	—	—	—	—	<b>86471</b>	
	4.6 x 20	—	—	—	—	—	—	—	—	<b>86472</b>	
<b>3µm</b>	2.1 x 10	<b>87673</b>	<b>87813</b>	<b>87709</b>	<b>87691</b>	<b>87727</b>	<b>87745</b>	<b>87763</b>	<b>87791</b>	<b>86473</b>	
	4.6 x 10	<b>87675</b>	<b>87815</b>	<b>87711</b>	<b>87693</b>	<b>87729</b>	<b>87747</b>	<b>87765</b>	<b>87793</b>	<b>86474</b>	
	2.1 x 20	<b>87674</b>	<b>87814</b>	<b>87710</b>	<b>87692</b>	<b>87728</b>	<b>87746</b>	<b>87764</b>	<b>87792</b>	<b>86475</b>	
	4.6 x 20	<b>87676</b>	<b>87816</b>	<b>87712</b>	<b>87694</b>	<b>87730</b>	<b>87748</b>	<b>87766</b>	<b>87794</b>	<b>86476</b>	

### 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
<b>Cartridges</b>	2.1 x 7.5	<b>87683</b>	<b>87823</b>	<b>87719</b>	<b>87701</b>	<b>87737</b>	<b>87755</b>	<b>87783</b>	<b>87803</b>	<b>86479</b>	
<b>5µm</b>	4.6 x 7.5	<b>87684</b>	<b>87824</b>	<b>87720</b>	<b>87702</b>	<b>87738</b>	<b>87756</b>	<b>87784</b>	<b>87804</b>	<b>86480</b>	
<b>Holder</b>	<b>80101</b>										



## LC Master Kit

### Everything you need in one place

Alltech's LC Master Kit saves time by stocking and organizing your lab with accessories that get your HPLC system up and running! This lightweight tackle box has a top section to hold tubing and tools, and three removable drawers. Each drawer - one for high pressure, one for low pressure, and one for miscellaneous accessories - is stocked with essential HPLC supplies and includes additional compartments for products specific to your needs.

**NEW!**



**Laminated top identifies stocked products and leaves room to write details on accessories you add.**

### LC Master Kit

DESCRIPTION	PART No.	PRICE
<b>LC Master Kit</b>	<b>97820</b>	



For more information on the LC Master Kit, request M117 or visit [www.alltechWEB.com](http://www.alltechWEB.com)

Visit [www.alltechWEB.com](http://www.alltechWEB.com) for product information and online ordering.

Visit [www.chromatography.com](http://www.chromatography.com) for the latest in technical information and applications.

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