

## Meteoric Core

Particle Image Structure



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# Meteoric Core

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## Introduction

### Core Shell Columns for UHPLC and HPLC

Meteoric Core is a core-shell material optimised for ultra fast separations with outstanding resolution. Excellent peak shapes for basic and coordinating compounds are possible due to a large pH-range of 1.5 to 10 (to pH 9 for C8). It is also an ideal choice for LC/MS applications due to low column bleeding.

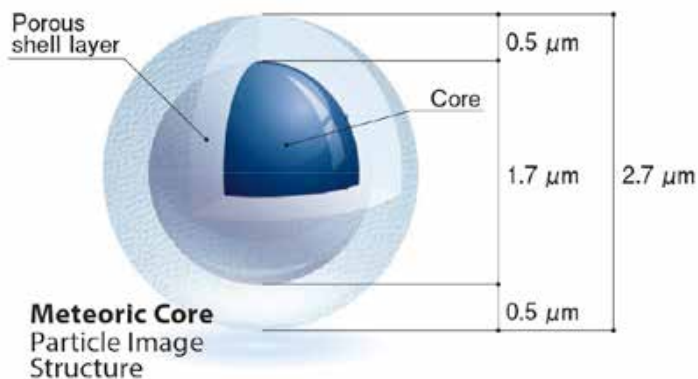
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## Core-Shell columns for UHPLC & HPLC

- ultra fast separation with outstanding resolution
- excellent peak shape for basic and coordinating compounds
- wide pH application range
- low column bleed, ideal for LC/MS

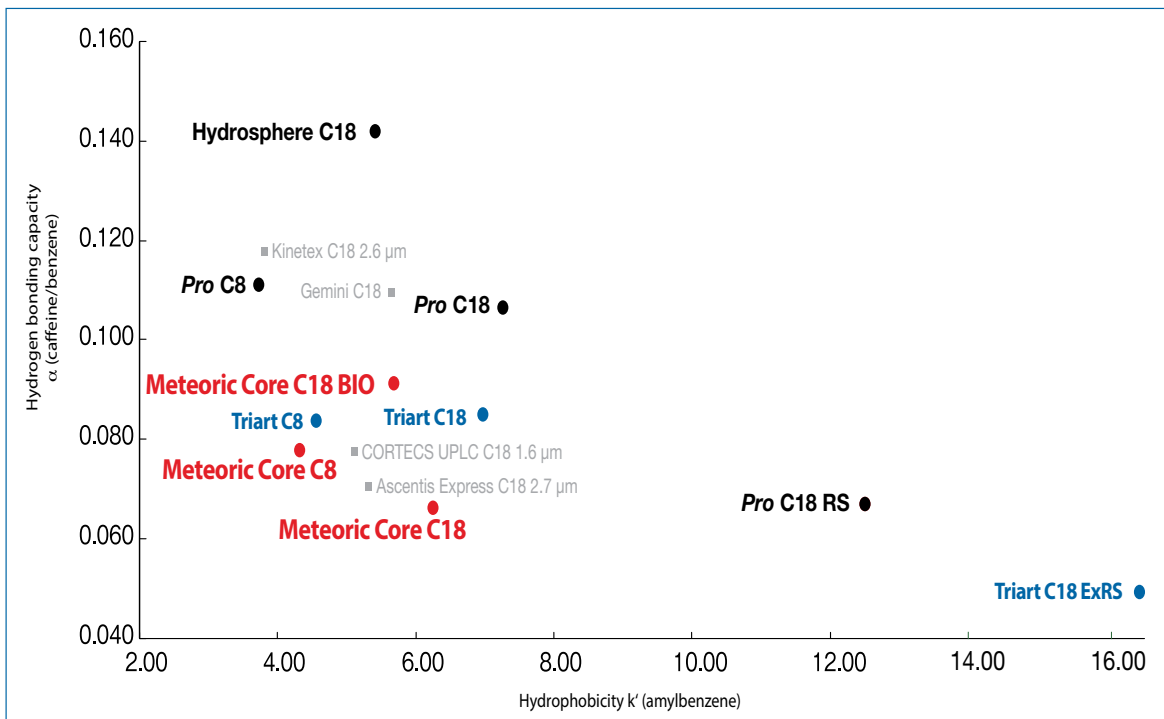


Specifications	Meteoric Core C18	Meteoric Core C18 BIO	Meteoric Core C8
Base particle	Core-Shell type silica gel		
Particle size / $\mu\text{m}$	2.7	2.7	2.7
Pore size / nm	8	16	8
Specific surface area / $\text{m}^2/\text{g}$	150	90	150
Bonding	Trifunctional	Trifunctional	Trifunctional
Carbon content / %	7	5	5
End capping	Yes	Yes	Yes
Pressure limit	60 MPa / 8700 psi	60 MPa / 8700 psi	60 MPa / 8700 psi
pH range	1.5-10	1.5-10	1.5-9
Temperature	70 °C (< pH 7), 50 °C (> pH 7)	70 °C (< pH 7), 50 °C (> pH 7)	60 °C (< pH 7), 40 °C (> pH 7)
USP Classification	L1	L1	L7

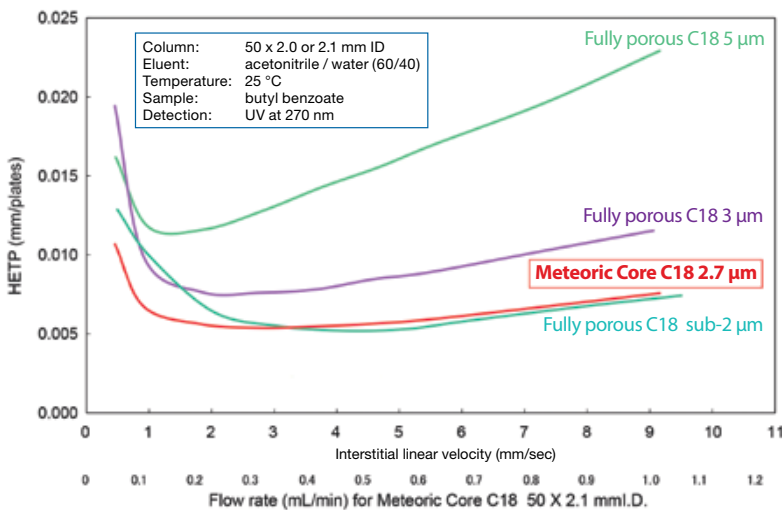


# Meteoric Core

## Selectivity Chart



## Van Deemter Curves: Correlation between linear velocity and column efficiency

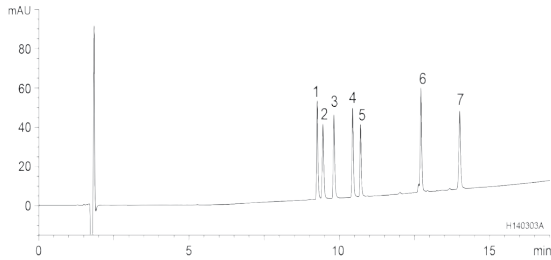


Meteoric Core C18 has high column efficiency which is almost equivalent to sub-2  $\mu$ m columns over a wide range of flow rates.

# Meteoric Core

## Applications

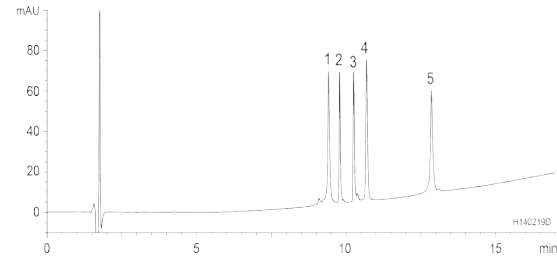
### Peptides



- |  |            |
|--|------------|
| 1. BAM-12P   | (MW 1,425) |
| 2. [D-Ala <sup>2</sup> ,Met <sup>5</sup> ]-Enkephalinamide | (MW 587)   |
| 3. Met-Enkephalin  | (MW 574)   |
| 4. [D-Ala <sup>2</sup> ,Met <sup>5</sup> ]-Enkephalin      | (MW 588)   |
| 5. α-Endorphin   | (MW 1,746) |
| 6. β-Endorphin   | (MW 1,859) |
| 7. γ-Endorphin   | (MW 3,465) |

Column: Meteoric Core BIO (2.7 μm, 6 nm) 150 x 2.1 mm ID  
 Part No.: CAW16SQ7-15Q1PT  
 Eluent: A) Water / TFA (100/0.1)  
 B) Acetonitrile / TFA (100/0.1)  
 Gradient: 15-55%B (0-15 min), 55% B (15-17 min)  
 Flow rate: 0.2 mL/min  
 Temperature: 40 °C  
 Detection: 220 nm

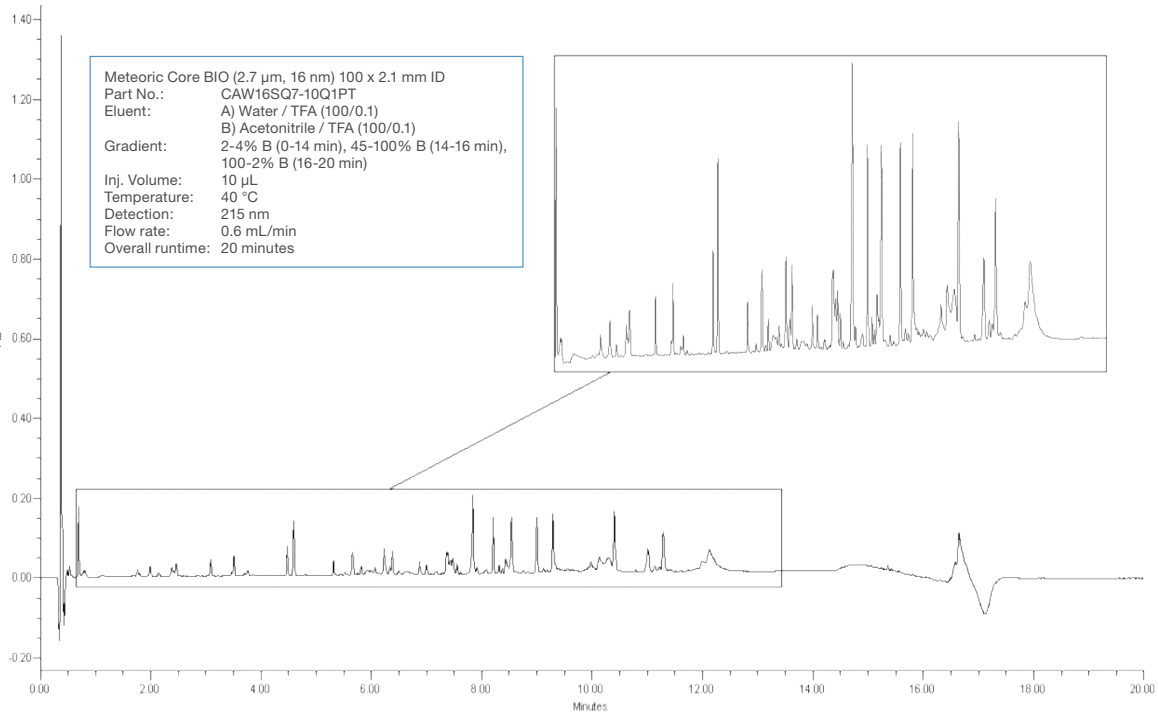
### Peptides/Proteins



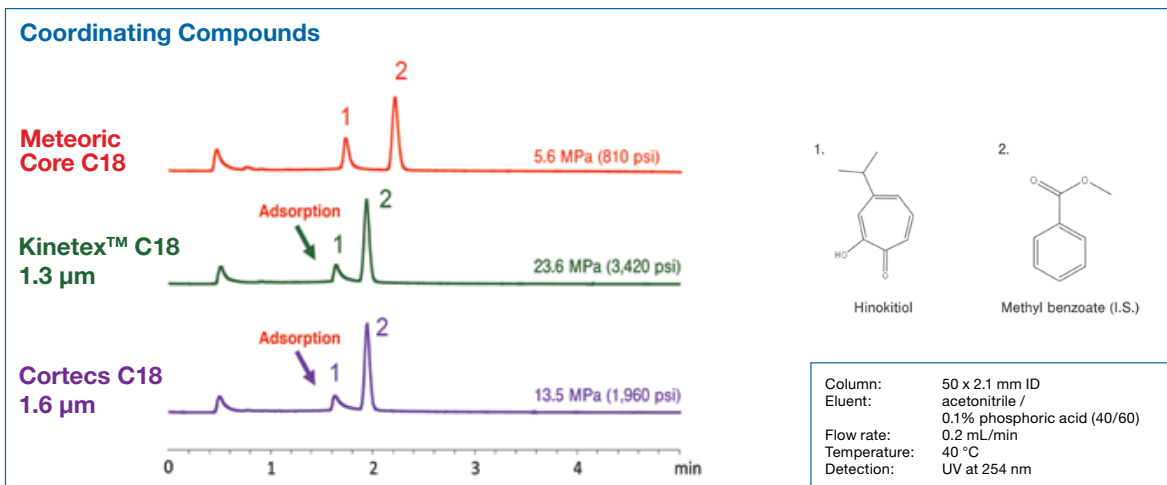
- |                         |             |
|-------------------------|-------------|
| 1. Cytochrome c         | (MW 12,400) |
| 2. Insulin (bovine)     | (MW 5,700)  |
| 3. Amyloid β-protein    | (MW 4,300)  |
| 4. Lysozyme             | (MW 14,000) |
| 5. α-Chymotrypsinogen A | (MW 25,700) |

Column: Meteoric Core BIO (2.7 μm, 16 nm) 150 x 2.1 mm ID  
 Part No.: CAW16SQ7-15Q1PT  
 Eluent: A) Water / TFA (100/0.1)  
 B) Acetonitrile / TFA (100/0.1)  
 Gradient: 20-70% B (0-15 min), 70% B (15-17 min)  
 Flow rate: 0.2 mL/min  
 Temperature: 40 °C  
 Detection: 220 nm

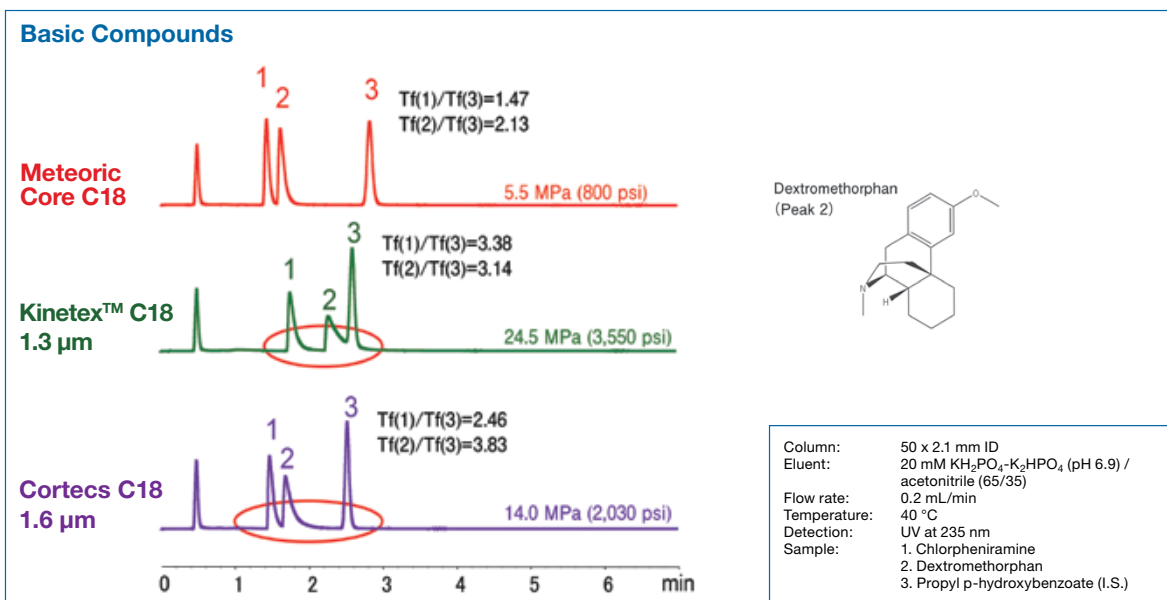
### Avastin Peptide Map - Trypsin Digest



# Meteoric Core

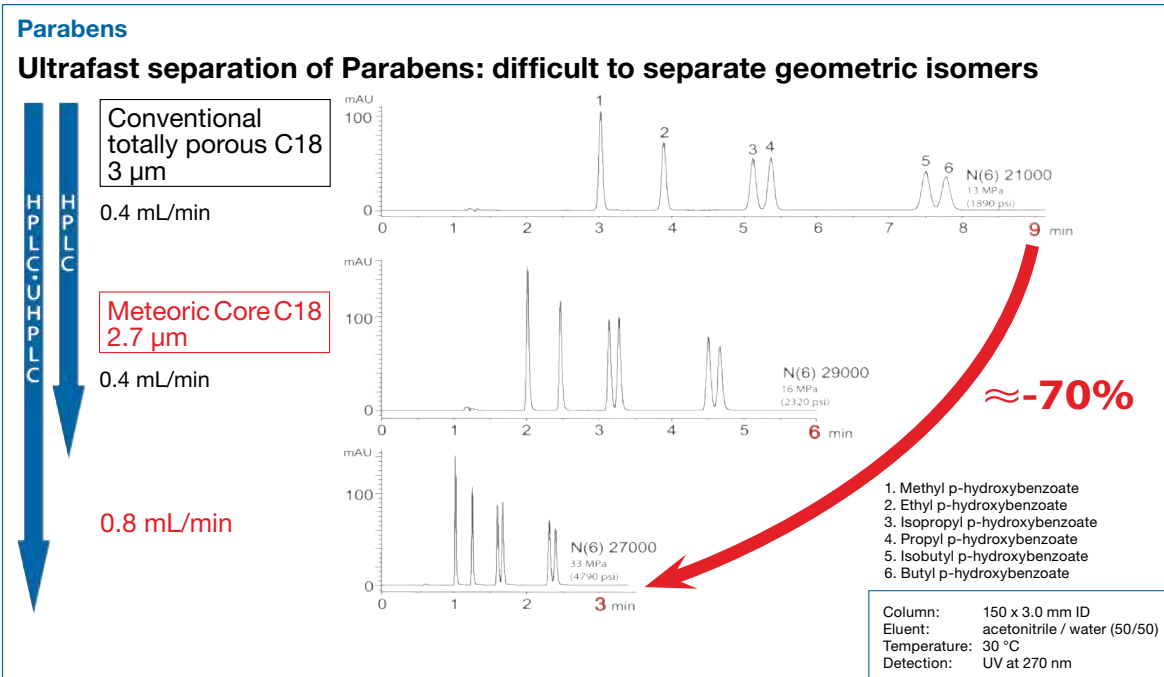


Meteoric Core C18 is able to provide excellent peak shapes for coordinating compounds which are often adsorbed by a column, as a result of a strong interaction with impurities such as trace amounts of metal ions. Meteoric Core is suitable for the quantitative analysis of coordinating compounds.



Meteoric Core C18 columns are high resolution columns which provide excellent peak shapes for basic compounds compared to competitors' sub-2 μm core-shell columns. Chromatographers can expect ultrafast analysis of basic compounds with highly quantitative and sensitive analysis when using Meteoric Core C18.

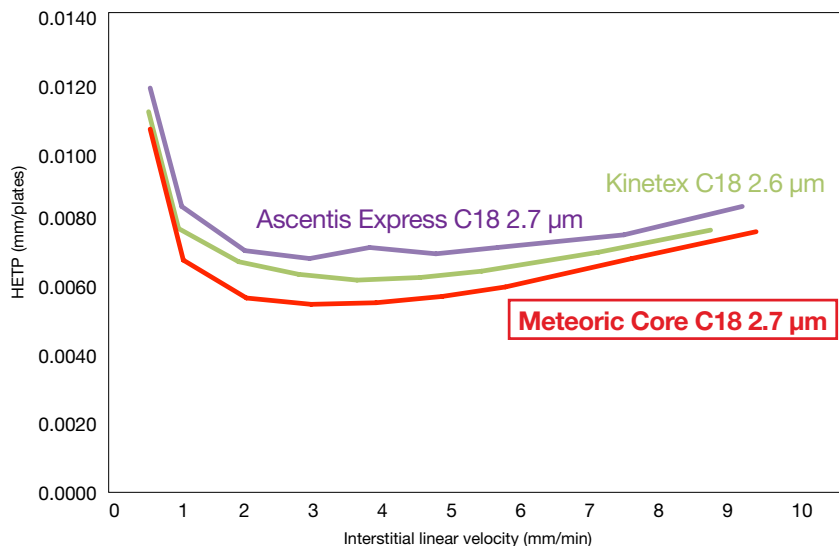
# Meteoric Core



Meteoric Core C18 can shorten the analysis time by two thirds compared to a conventional totally porous C18 column with the same column dimensions and under the same analytical conditions. In addition, it maintains the same efficiency at double the flow rate. This allows a further decrease in analysis time by one third without loss of resolution, and at an operating pressure of less than 5,000 psi.

## QC-Data

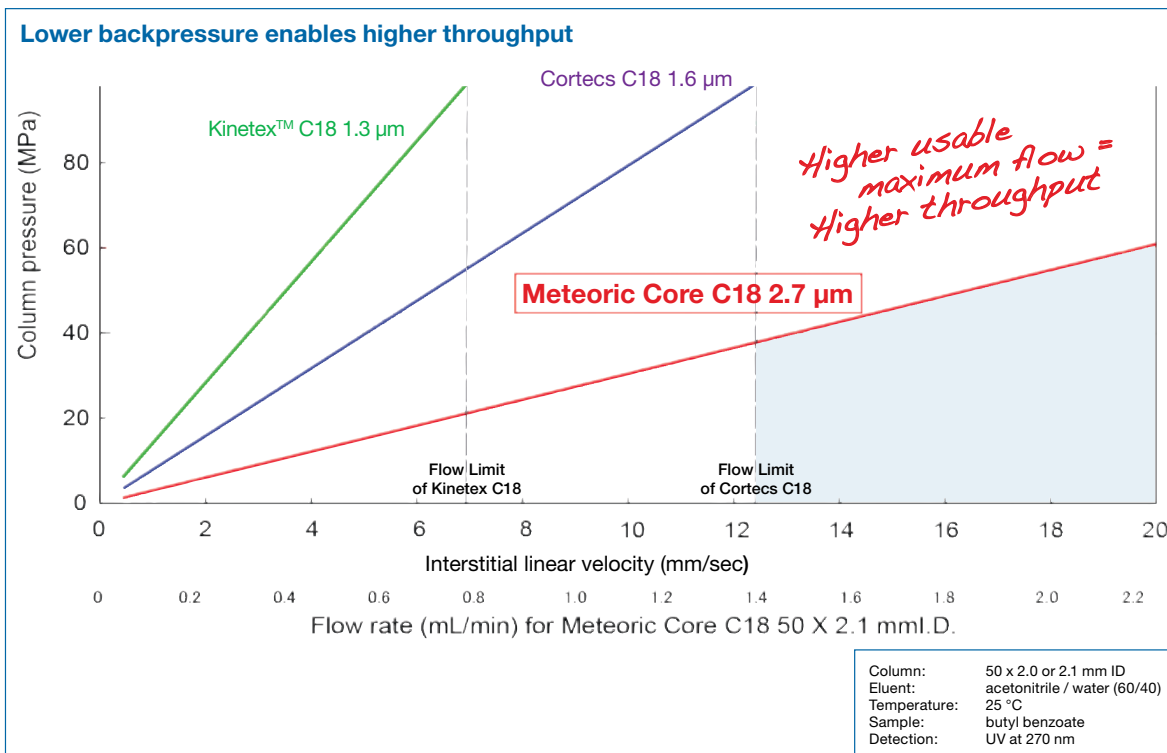
### Correlation between linear velocity and column efficiency



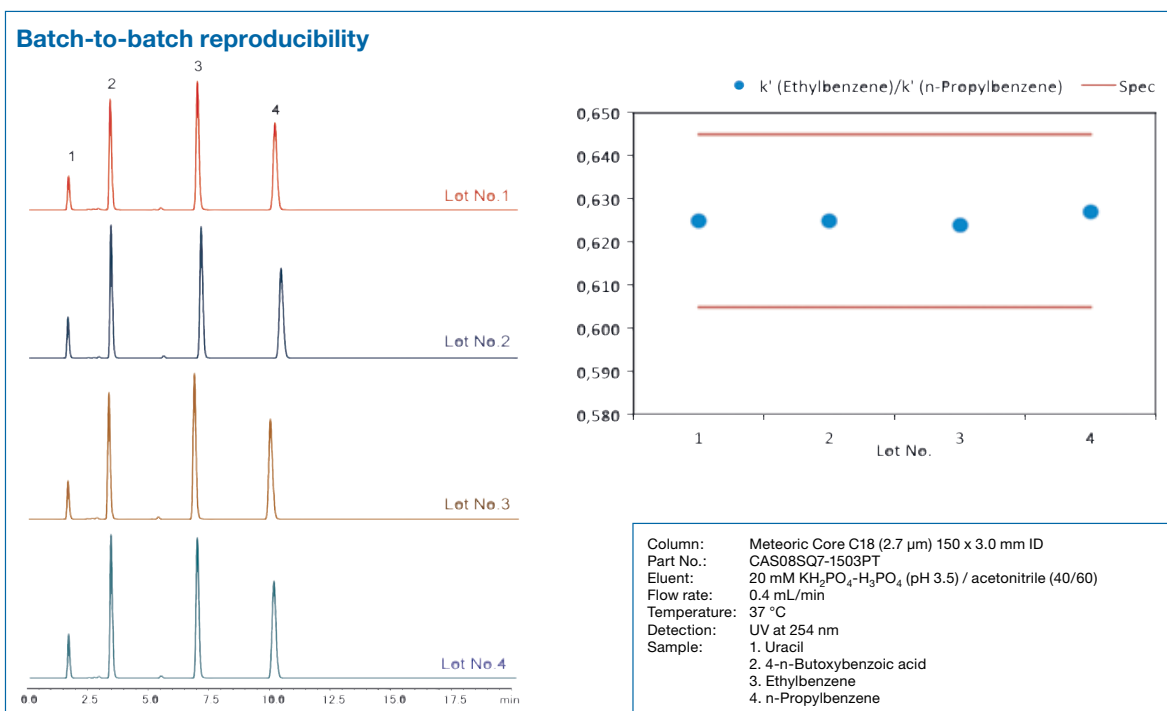
Meteoric Core C18 shows outstanding column efficiencies over a wide flow range.

Column: 50 x 2.0 or 2.1 mm ID  
Eluent: acetonitrile / water (60/40)  
Temperature: 25 °C  
Sample: butyl benzoate  
Detection: UV at 270 nm

# QC-Data



The operating pressure of Meteoric Core is one half to one fifth of sub-2 μm Core-Shell type columns. High throughput analysis using Meteoric Core could be expected even with longer length columns since the usable maximum flow rate is higher than that of competitors' sub-2 μm Core-Shell products.

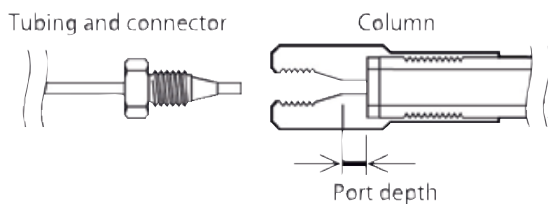


# Ordering Information

## Meteoric Core

Particle size [ $\mu\text{m}$ ]	Column size length x ID [mm]	Part number		
		Meteoric Core C18	Meteoric Core C18 BIO	Meteoric Core C8
2.7	30 x 2.1	CAS08SQ7-03Q1PT	CAW16SQ7-03Q1PT	COS08SQ7-03Q1PT
	50 x 2.1	CAS08SQ7-05Q1PT	CAW16SQ7-05Q1PT	COS08SQ7-05Q1PT
	75 x 2.1	CAS08SQ7-L5Q1PT	CAW16SQ7-L5Q1PT	COS08SQ7-L5Q1PT
	100 x 2.1	CAS08SQ7-10Q1PT	CAW16SQ7-10Q1PT	COS08SQ7-10Q1PT
	150 x 2.1	CAS08SQ7-15Q1PT	CAW16SQ7-15Q1PT	COS08SQ7-15Q1PT
	30 x 3.0	CAS08SQ7-0303PT	CAW16SQ7-0303PT	COS08SQ7-0303PT
	50 x 3.0	CAS08SQ7-0503PT	CAW16SQ7-0503PT	COS08SQ7-0503PT
	75 x 3.0	CAS08SQ7-L503PT	CAW16SQ7-L503PT	COS08SQ7-L503PT
	100 x 3.0	CAS08SQ7-1003PT	CAW16SQ7-1003PT	COS08SQ7-1003PT
	150 x 3.0	CAS08SQ7-1503PT	CAW16SQ7-1503PT	COS08SQ7-1503PT
	30 x 4.6	CAS08SQ7-0346PT	CAW16SQ7-0346PT	COS08SQ7-0346PT
	50 x 4.6	CAS08SQ7-0546PT	CAW16SQ7-0546PT	COS08SQ7-0546PT
	75 x 4.6	CAS08SQ7-L546PT	CAW16SQ7-L546PT	COS08SQ7-L546PT
	100 x 4.6	CAS08SQ7-1046PT	CAW16SQ7-1046PT	COS08SQ7-1046PT
	150 x 4.6	CAS08SQ7-1546PT	CAW16SQ7-1546PT	COS08SQ7-1546PT

## Column end fitting and column connections



The end of the product number	Port depth	Style of endfitting
PT	2 mm	UPLC compatible (Parker) style

UPLC is a registered trademark of Waters Corporation.