

VertiSep™ UPS

VertiSep™ UPS HPLC Columns

- Ultra performance silica with excellent stability, efficiency and column-to-column reproducibility
- Ultra-high surface area offer ultra high resolution for gradient elution of difficulty separation compounds
- Fully endcapped to improve peak shape
- Monomeric bonding offers low back pressure and high column efficiency to better resolve chemically similar analytes.

VertiSep™ UPS packings are ultra-high purity spherical silica which contains less amounts of metal ions and sulfate contaminants offering ultra performance with excellent stability at pH 1.5-10.0*, excellent efficiency, column-to-column reproducibility, long lifetime and ideal for LC/MS or ELSD applications.

VertiSep™ UPS packings are ultra-high surface of 450 m²/g offer greater capacity and higher resolution for gradient elution of difficult separation compounds like basic drugs, organic acids and other polar compounds.

VertiSep™ UPS reverse phase packings are fully endcapped after bonding to cover unreached silanols and improve peak symmetry for basic analytes.

VertiSep™ UPS packings are monomeric bonding resulting in lower column back pressure and high column efficiency to better resolve chemically similar analytes.

VertiSep™ UPS are manufactured by statistic process control of silica synthesis, bonding and column packing. The reproducible column packing method control provides exceptional efficiency, symmetry and reproducible capacity factor.

VertiSep™ UPS C18 is 17% carbon loading offering higher capacity and greater resolution for all HPLC applications.

VertiSep™ UPS C8 offers the highly degree of hydrophobicity for pharmaceuticals, nucleotides and polar compounds.

VertiSep™ UPS Ph is a reverse phase chemistry offering high hydrolytic stability for high hydrophobic compounds.

VertiSep™ UPS CN can be used both reverse phase or normal phase offering excellent reproducibility and performance for polar compounds in accordance with USP L10.

VertiSep™ UPS Si is normal phase packings offering excellent reproducibility and performance for polar compounds in accordance with USP L3.

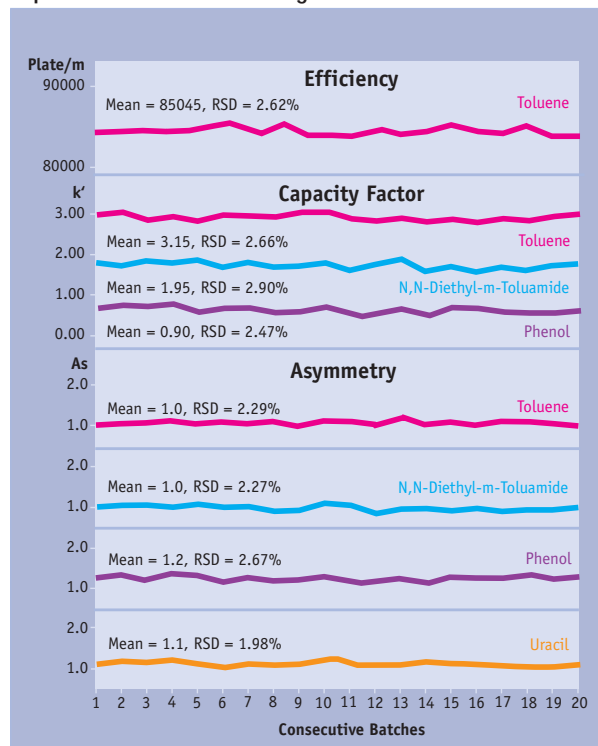
VertiSep™ UPS HILIC offers highly degree of retention for polar compounds in a highly organic mobile phase.

VertiSep™ UPS PFP offers multiple mechanisms such as Hydrogen Bonding, Dipole-Dipole Interactions, Aromatic π - π Interactions and Hydrophobic for alternative selectivity.



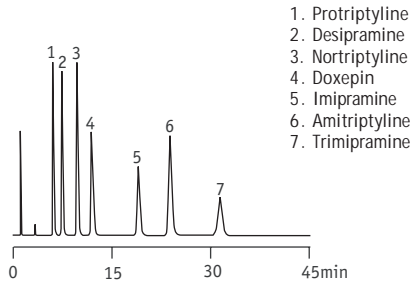
Specifications						
Packing	Particle Size (µm)	Carbon Load (%)	Pore Size (Å)	Pore Volume (mL/g)	Surface Area (m ² /g)	End Capped
C18	3,5,10	17	100	1.1	450	Yes
C8	3,5,10	9	100	1.1	450	Yes
Ph	3,5,10	9.5	100	1.1	450	Yes
CN	3,5,10	4	100	1.1	450	No
Si	3,5,10	-	100	1.1	450	No
HILIC	3,5,10	-	100	1.1	450	No
PFP	3,5,10	-	100	1.1	450	No

Reproducible Column Packing Method Controls*



*Test Conditions
 Column: VertiSep™ UPS C18, 5µm, 4.6x250mm
 Mobile Phase: 60:40 Acetonitrile /Water
 Flow Rate: 1.0mL/min
 Detector: UV 254nm
 Sample: Reversed phase test mix

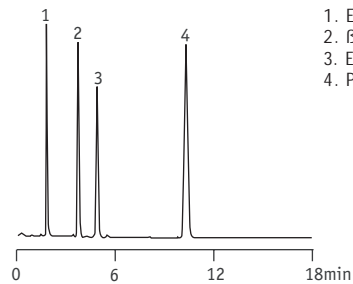
Tricyclic antidepressants



1. Protriptyline
2. Desipramine
3. Nortriptyline
4. Doxepin
5. Imipramine
6. Amitriptyline
7. Trimipramine

Column: VertiSep™ UPS C18 5µm 4.6x150mm
 Mobile Phase: CH₃OH/20mM KH₂PO₄ (pH 7.0)-70/30
 Flow Rate: 1.2mL/min
 Detection: UV 240nm

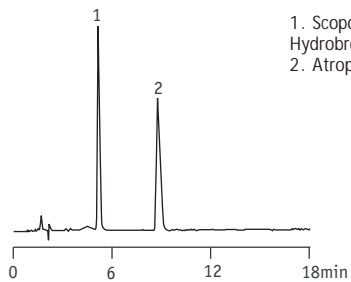
Steroids



1. Estriol
2. β-Estradiol
3. Estrone
4. Progesterone

Column: VertiSep™ UPS C18 5µm 4.6x150mm
 Mobile Phase: CH₃OH/H₂O=60/40
 Flow Rate: 1.0mL/min
 Detection: UV230nm

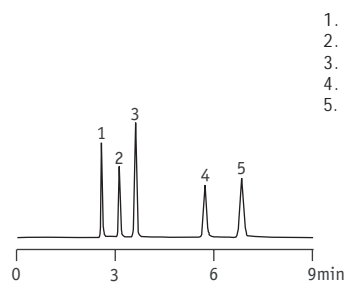
Anticholinergic drugs



1. Scopolamine Hydrobromide
2. Atropine Sulfate

Column: VertiSep™ UPS C18 5µm 4.6x150mm
 Mobile Phase: CH₃OH/30mM NaH₂PO₄=15/85
 Flow Rate: 1.0mL/min
 Detection: UV254nm

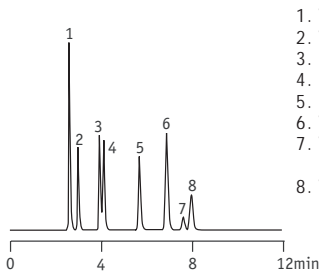
β-Blocker



1. Atenolol
2. Nadolol
3. Metoprolol
4. Propranolol
5. Alprenolol

Column: VertiSep™ UPS C18 5µm 4.6x150mm
 Mobile Phase: CH₃OH/20mM KH₂PO₄-K₂HPO₄ (pH 7.0)-60/40
 Flow Rate: 1.0mL/min
 Detection: UV220nm

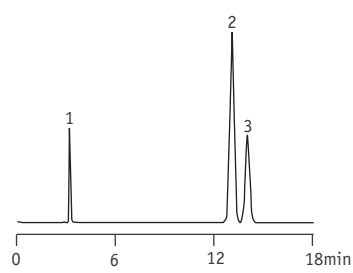
Water-Soluble Vitamins



1. Vitamin C (L-Ascorbic acid)
2. Vitamin B13 (Orotic acid)
3. Nicotinic acid
4. Nicotinamine
5. Pyridoxal
6. Vitamin B6 (Pyridoxine)
7. Vitamin B2 (Calcium pantothenate)
8. Vitamin B1 (Thiamin)

Column: VertiSep™ UPS C18 5µm 4.6x150mm
 Mobile Phase: 20mM H₂PO₄ + 5mM Sodium 1-Pentanesulfonate/CH₃CN=92/8
 Flow Rate: 1.0mL/min
 Detection: UV210nm

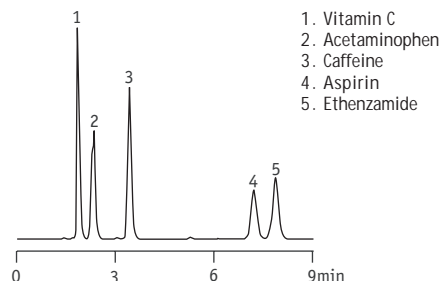
Antiepileptics



1. Primidone
2. Phenytoin
3. Carbamazepine

Column: VertiSep™ UPS C18 5µm 4.6x150mm
 Mobile Phase: CH₃CN/20mM KH₂PO₄-K₂HPO₄ (pH 7.0)=70/30
 Flow Rate: 1.0mL/min
 Detection: UV220nm

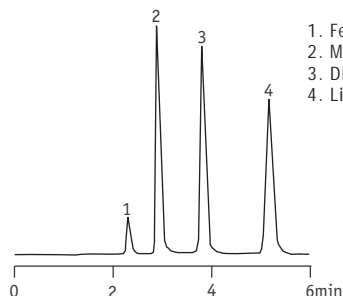
Cold Medicine Components



1. Vitamin C
2. Acetaminophen
3. Caffeine
4. Aspirin
5. Ethenzamide

Column: VertiSep™ UPS C18 5µm 4.6x250mm
 Mobile Phase: 50:50 MeOH/50mM KH₂PO₄ (pH 3.0)
 Flow Rate: 1.0mL/min
 Detection: UV220nm

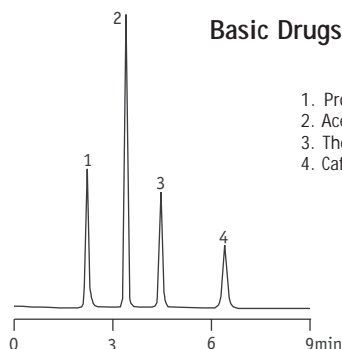
Herbicides



1. Fenuron
2. Monuron
3. Diuron
4. Linuron

Column: VertiSep™ UPS CN 5µm 4.6x150mm
 Mobile Phase: Water:Acetonitrile (60:40)
 Flow Rate: 1.0mL/min
 Detection: UV254nm

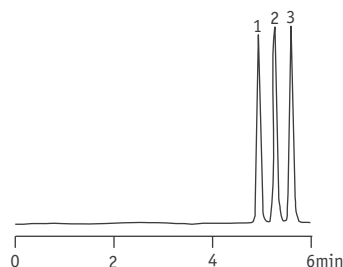
Basic Drugs



1. Procainimide
2. Acetaminophen
3. Theophylline
4. Caffeine

Column: VertiSep™ UPS C8 5µm 4.6x150mm
 Mobile Phase: 0.05M Phosphate Buffer pH3.0:Methanol (80:20)
 Flow Rate: 1.0mL/min
 Detection: UV254nm

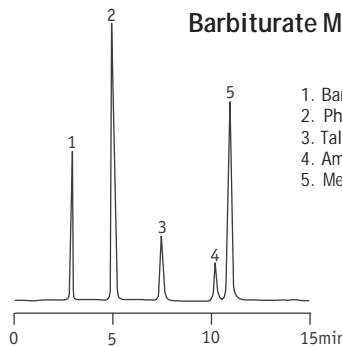
Nitroanilines



1. p-Nitroaniline
2. m-Nitroaniline
3. o-Nitroaniline

Column: VertiSep™ UPS Ph 5µm 4.6x250mm
 Mobile Phase: 50:50 MeCN/50mM K₂HPO₄ (pH 3.15)
 Flow Rate: 1.0mL/min
 Detection: UV254nm

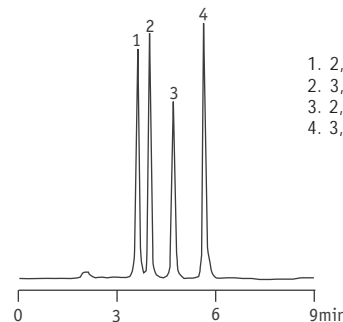
Barbiturate Mix



1. Barbitol
2. Phenobarbital
3. Talbutal
4. Amobarbital
5. Mephobarbital

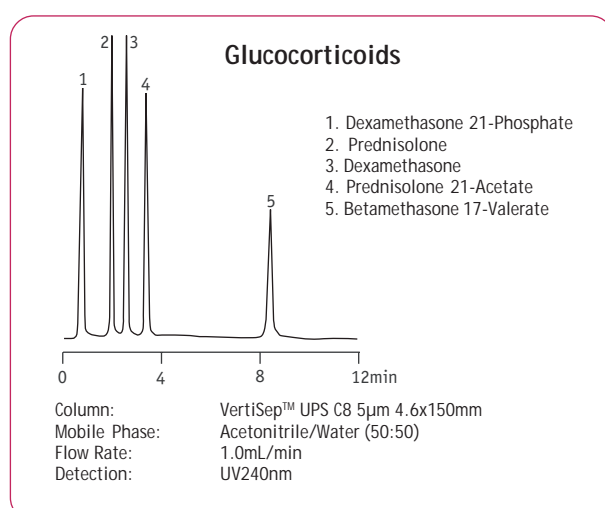
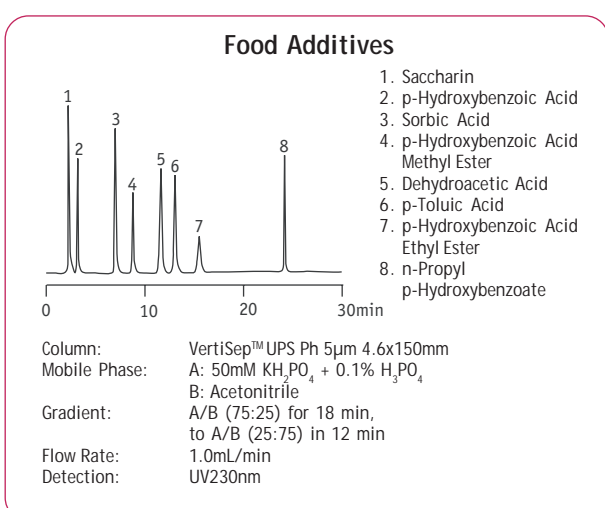
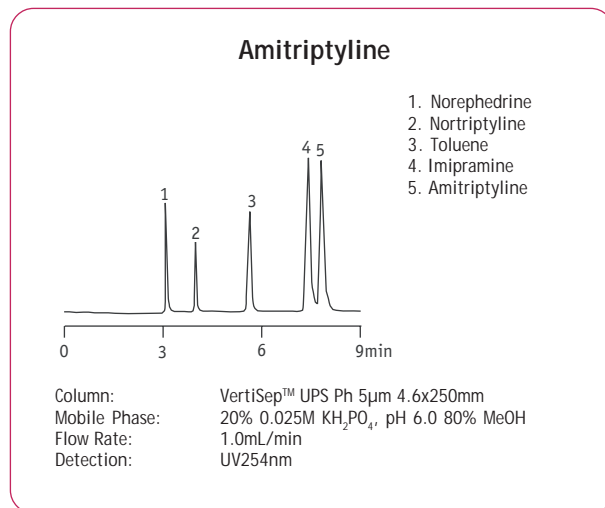
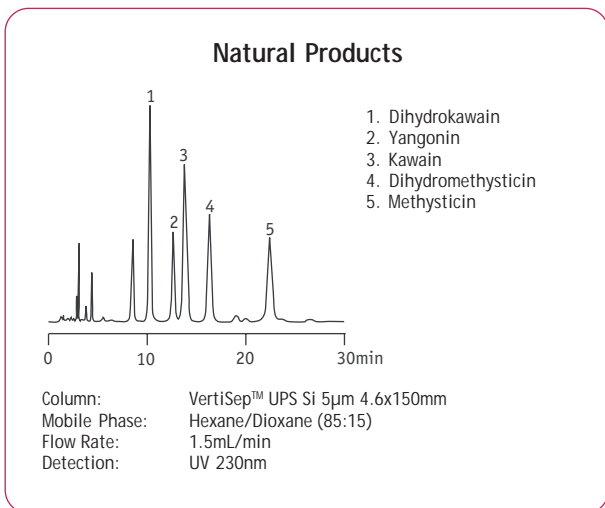
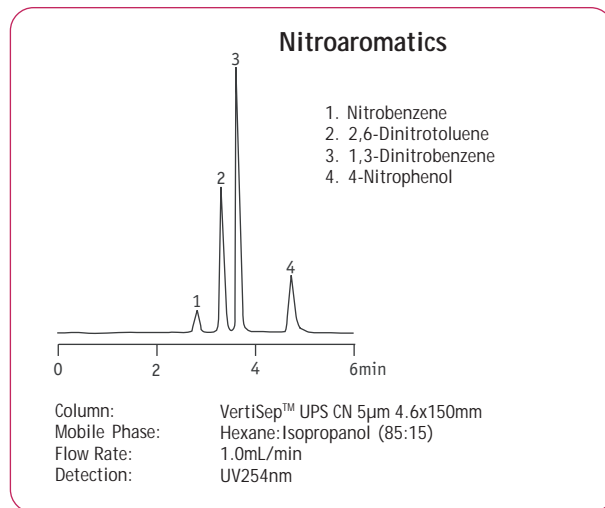
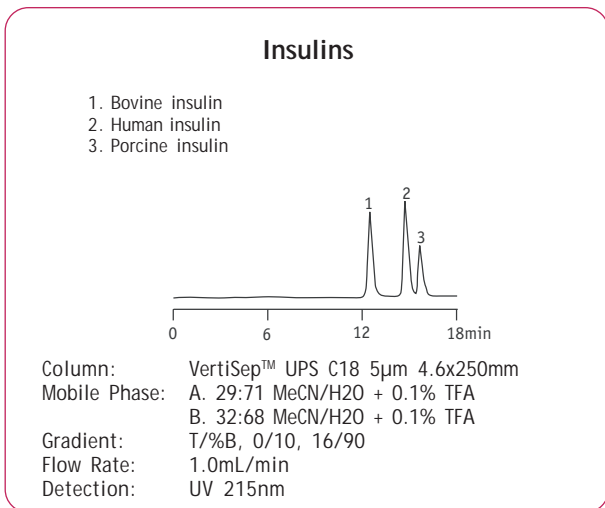
Column: VertiSep™ UPS C8 5µm 4.6x250mm
 Mobile Phase: 0.05M Ammonium Acetate:Acetonitrile (78:22)
 Flow Rate: 1.0mL/min
 Detection: UV230nm

MDA and MDMA Analogs

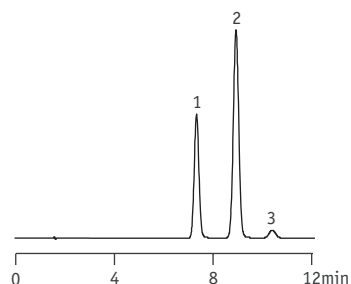


1. 2,3-MDA
2. 3,4-MDA
3. 2,3-MDMA
4. 3,4-MDMA

Column: VertiSep™ UPS Si 5µm 4.6x150mm
 Mobile Phase: 1%NH₄OH in Methanol:Acetonitrile(75:25)
 Flow Rate: 1.0mL/min
 Detection: UV280nm



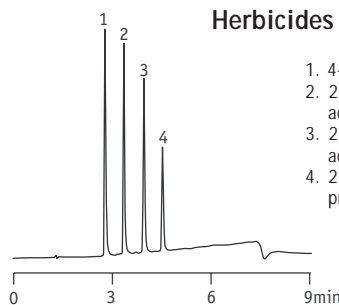
Aminopyridine Isomers



1. 3-Aminopyridine
2. 4-Aminopyridine
3. 2-Aminopyridine

Column: VertiSep™ UPS HILIC 5µm 4.6x150mm
 Mobile Phase: MeCN:10 mM AmAc, pH 4.0 (50:50)
 Flow Rate: 1.0mL/min
 Detection: UV 250nm

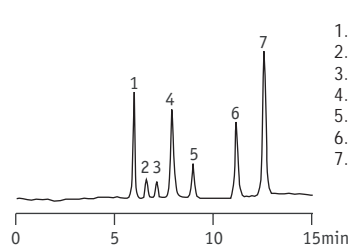
Herbicides



1. 4-Chlorophenoxyacetic acid
2. 2,4-Dichlorophenoxyacetic acid
3. 2,4,5-Trichlorophenoxyacetic acid
4. 2 (2,4,5-Trichlorophenoxy) propionic acid

Column: VertiSep™ UPS PFP 3µm 4.6x150mm
 Mobile Phase: A: 0.1 % Formic acid in Water
 B: 0.1 % Formic acid in Acetonitrile
 Gradient: Time/%B, 0/55, 6/75
 Flow Rate: 1.0mL/min
 Detection: UV280nm

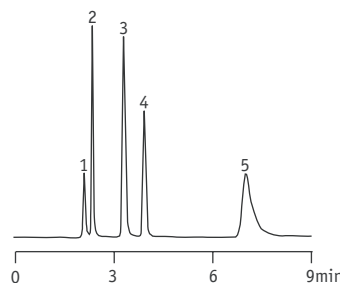
Polar Drug



1. Norphenylephrine
2. Pseudoephedrine
3. Norephedrine
4. Doxylamine
5. Pyrilamine
6. Dextromethorphan
7. Trimipramine

Column: VertiSep™ UPS HILIC 5µm 4.6x150mm
 Mobile Phase: 45% MeCN
 Gradient: pH 5.0 to Ammonium Acetate pH 4.0 from 10mM to 50mM in 15 min, hold 10min
 Flow Rate: 1.0mL/min
 Detection: UV 270nm

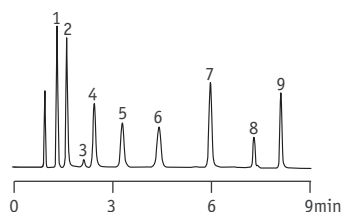
Nucleobase



1. Cytosine
2. Uracil
3. Guanine
4. Thymine
5. Adenine

Column: VertiSep™ UPS PFP 5µm 4.6x150mm
 Mobile Phase: 20mM AmAc, pH 5.0:MeOH (85:15)
 Flow Rate: 1.0mL/min
 Detection: UV260nm

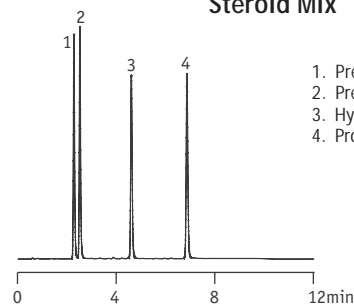
Vitamins



1. Nicotinamide
2. Pyridoxine
3. Riboflavin pKa
4. p-Aminobenzoic Acid
5. Thiamine
6. Nicotinic Acid
7. Ascorbic Acid
8. Cobalamin
9. Folic Acid

Column: VertiSep™ UPS HILIC 5µm 4.6x150mm
 Mobile Phase: A:ACN:100 mM NH₄Acetate, pH 5.8 (90:10)
 B:ACN:20 mM NH₄Acetate, pH 5.8 (50:)
 Gradient: Time/%B, 0/0, 9.5/100
 Flow Rate: 2.0mL/min
 Detection: UV260nm

Steroid Mix



1. Prednisone
2. Prednisolone
3. Hydroxyprogesterone
4. Progesterone

Column: VertiSep™ UPS PFP 5µm 4.6x150mm
 Mobile Phase: A: H₂O, B: ACN
 Gradient: Time/%B, 0/40, 8/70
 Flow Rate: 1.0mL/min
 Detection: UV254nm

Ordering Information					
Phase	Particle Size		I.D.		
	(µm)	Formats	Length (mm)	QTY	Part No.
VertiSep™ UPS					
C18	3	Ultra-Fast	2.1 x 10	1	03CA-B111
	3	Ultra-Fast	2.1 x 20	1	03CA-B611
	3	Ultra-Fast	2.1 x 50	1	03CA-B211
	3	LC/MS	2.1 x 100	1	03CA-B311
	3	LC/MS	2.1 x 150	1	03CA-B411
	3	LC/MS	3.2 x 100	1	03CA-C311
	3	LC/MS	3.2 x 150	1	03CA-C411
	3	Hi-Speed	4.6 x 50	1	03CA-E211
	3	Analytical	4.6 x 100	1	03CA-E311
	3	Analytical	4.6 x 150	1	03CA-E411
	3	Hi-Speed	7.8 x 50	1	03CA-G211
	3	Analytical	7.8 x 100	1	03CA-G311
	5	LC/MS	2.1 x 100	1	03CA-B321
	5	LC/MS	2.1 x 150	1	03CA-B421
	5	LC/MS	2.1 x 250	1	03CA-B521
	5	LC/MS	3.2 x 100	1	03CA-C321
	5	LC/MS	3.2 x 150	1	03CA-C421
	5	LC/MS	3.2 x 250	1	03CA-C521
	5	Hi-Speed	4.6 x 50	1	03CA-E221
	5	Analytical	4.6 x 100	1	03CA-E321
	5	Analytical	4.6 x 150	1	03CA-E421
	5	Analytical	4.6 x 250	1	03CA-E521
	5	Prep	10.0 x 150	1	03CA-H421
	5	Prep	10.0 x 250	1	03CA-H521
	5	Prep	21.2 x 150	1	03CA-I421
	5	Prep	21.2 x 250	1	03CA-I521
	10	Analytical	4.6 x 250	1	03CA-E531
	10	Prep	10.0 x 150	1	03CA-H431
	10	Prep	10.0 x 250	1	03CA-H531
	10	Prep	21.2 x 150	1	03CA-I431
	10	Prep	21.2 x 250	1	03CA-I531
	10	Prep	30.0 x 150	1	03CA-J431
	10	Prep	30.0 x 250	1	03CA-J531
10	Prep	50.0 x 150	1	03CA-K431	
10	Prep	50.0 x 250	1	03CA-K531	

Ordering Information					
Phase	Particle Size		I.D.		
	(µm)	Formats	Length (mm)	QTY	Part No.
VertiSep™ UPS					
C8	3	Ultra-Fast	2.1 x 10	1	03CB-B111
	3	Ultra-Fast	2.1 x 20	1	03CB-B611
	3	Ultra-Fast	2.1 x 50	1	03CB-B211
	3	LC/MS	2.1 x 100	1	03CB-B311
	3	LC/MS	2.1 x 150	1	03CB-B411
	3	LC/MS	3.2 x 100	1	03CB-C311
	3	LC/MS	3.2 x 150	1	03CB-C411
	3	Hi-Speed	4.6 x 50	1	03CB-E211
	3	Analytical	4.6 x 100	1	03CB-E311
	3	Analytical	4.6 x 150	1	03CB-E411
	3	Hi-Speed	7.8 x 50	1	03CB-G211
	3	Analytical	7.8 x 100	1	03CB-G311
	5	LC/MS	2.1 x 100	1	03CB-B321
	5	LC/MS	2.1 x 150	1	03CB-B421
	5	LC/MS	2.1 x 250	1	03CB-B521
	5	LC/MS	3.2 x 100	1	03CB-C321
	5	LC/MS	3.2 x 150	1	03CB-C421
	5	LC/MS	3.2 x 250	1	03CB-C521
	5	Hi-Speed	4.6 x 50	1	03CB-E221
	5	Analytical	4.6 x 100	1	03CB-E321
	5	Analytical	4.6 x 150	1	03CB-E421
	5	Analytical	4.6 x 250	1	03CB-E521
	5	Prep	10.0 x 150	1	03CB-H421
	5	Prep	10.0 x 250	1	03CB-H521
	5	Prep	21.2 x 150	1	03CB-I421
	5	Prep	21.2 x 250	1	03CB-I521
	10	Analytical	4.6 x 250	1	03CB-E531
	10	Prep	10.0 x 150	1	03CB-H431
	10	Prep	10.0 x 250	1	03CB-H531
	10	Prep	21.2 x 150	1	03CB-I431
	10	Prep	21.2 x 250	1	03CB-I531
	10	Prep	30.0 x 150	1	03CB-J431
	10	Prep	30.0 x 250	1	03CB-J531
10	Prep	50.0 x 150	1	03CB-K431	
10	Prep	50.0 x 250	1	03CB-K531	

Ordering Information					
Phase	Particle Size (µm)	Formats	I.D. Length (mm)	QTY	Part No.
VertiSep™ UPS					
Ph	3	Ultra-Fast	2.1 x 10	1	03CD-B111
	3	Ultra-Fast	2.1 x 20	1	03CD-B611
	3	Ultra-Fast	2.1 x 50	1	03CD-B211
	3	LC/MS	2.1 x 100	1	03CD-B311
	3	LC/MS	2.1 x 150	1	03CD-B411
	3	LC/MS	3.2 x 100	1	03CD-C311
	3	LC/MS	3.2 x 150	1	03CD-C411
	3	Hi-Speed	4.6 x 50	1	03CD-E211
	3	Analytical	4.6 x 100	1	03CD-E311
	3	Analytical	4.6 x 150	1	03CD-E411
	3	Hi-Speed	7.8 x 50	1	03CD-G211
	3	Analytical	7.8 x 100	1	03CD-G311
	5	LC/MS	2.1 x 100	1	03CD-B321
	5	LC/MS	2.1 x 150	1	03CD-B421
	5	LC/MS	2.1 x 250	1	03CD-B521
	5	LC/MS	3.2 x 100	1	03CD-C321
	5	LC/MS	3.2 x 150	1	03CD-C421
	5	LC/MS	3.2 x 250	1	03CD-C521
	5	Hi-Speed	4.6 x 50	1	03CD-E221
	5	Analytical	4.6 x 100	1	03CD-E321
	5	Analytical	4.6 x 150	1	03CD-E421
	5	Analytical	4.6 x 250	1	03CD-E521
	5	Prep	10.0 x 150	1	03CD-H421
	5	Prep	10.0 x 250	1	03CD-H521
	5	Prep	21.2 x 150	1	03CD-I421
	5	Prep	21.2 x 250	1	03CD-I521
	10	Analytical	4.6 x 250	1	03CD-E531
	10	Prep	10.0 x 150	1	03CD-H431
	10	Prep	10.0 x 250	1	03CD-H531
	10	Prep	21.2 x 150	1	03CD-I431
	10	Prep	21.2 x 250	1	03CD-I531
	10	Prep	30.0 x 150	1	03CD-J431
	10	Prep	30.0 x 250	1	03CD-J531
	10	Prep	50.0 x 150	1	03CD-K431
	10	Prep	50.0 x 250	1	03CD-K531

Ordering Information					
Phase	Particle Size (µm)	Formats	I.D. Length (mm)	QTY	Part No.
VertiSep™ UPS					
CN	3	Ultra-Fast	2.1 x 10	1	03CE-B111
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	3	Ultra-Fast	2.1 x 50	1	03CE-B211
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	3	Analytical	7.8 x 100	1	03CE-G311
	5	LC/MS	2.1 x 100	1	03CE-B321
	5	LC/MS	2.1 x 150	1	03CE-B421
	5	LC/MS	2.1 x 250	1	03CE-B521
	5	LC/MS	3.2 x 100	1	03CE-C321
	5	LC/MS	3.2 x 150	1	03CE-C421
	5	LC/MS	3.2 x 250	1	03CE-C521
	5	Hi-Speed	4.6 x 50	1	03CE-E221
	5	Analytical	4.6 x 100	1	03CE-E321
	5	Analytical	4.6 x 150	1	03CE-E421
	5	Analytical	4.6 x 250	1	03CE-E521
	5	Prep	10.0 x 150	1	03CE-H421
	5	Prep	10.0 x 250	1	03CE-H521
	5	Prep	21.2 x 150	1	03CE-I421
	5	Prep	21.2 x 250	1	03CE-I521
	10	Analytical	4.6 x 250	1	03CE-E531
	10	Prep	10.0 x 150	1	03CE-H431
	10	Prep	10.0 x 250	1	03CE-H531
	10	Prep	21.2 x 150	1	03CE-I431
	10	Prep	21.2 x 250	1	03CE-I531
	10	Prep	30.0 x 150	1	03CE-J431
	10	Prep	30.0 x 250	1	03CE-J531
	10	Prep	50.0 x 150	1	03CE-K431
	10	Prep	50.0 x 250	1	03CE-K531

VertiSep™ UPS

Ordering Information					
Phase	Particle Size (µm)	Formats	I.D. Length (mm)	QTY	Part No.
VertiSep™ UPS					
Si	3	Ultra-Fast	2.1 x 10	1	03CG-B111
	3	Ultra-Fast	2.1 x 20	1	03CG-B611
	3	Ultra-Fast	2.1 x 50	1	03CG-B211
	3	LC/MS	2.1 x 100	1	03CG-B311
	3	LC/MS	2.1 x 150	1	03CG-B411
	3	LC/MS	3.2 x 100	1	03CG-C311
	3	LC/MS	3.2 x 150	1	03CG-C411
	3	Hi-Speed	4.6 x 50	1	03CG-E211
	3	Analytical	4.6 x 100	1	03CG-E311
	3	Analytical	4.6 x 150	1	03CG-E411
	3	Hi-Speed	7.8 x 50	1	03CG-G211
	3	Analytical	7.8 x 100	1	03CG-G311
	5	LC/MS	2.1 x 100	1	03CG-B321
	5	LC/MS	2.1 x 150	1	03CG-B421
	5	LC/MS	2.1 x 250	1	03CG-B521
	5	LC/MS	3.2 x 100	1	03CG-C321
	5	LC/MS	3.2 x 150	1	03CG-C421
	5	LC/MS	3.2 x 250	1	03CG-C521
	5	Hi-Speed	4.6 x 50	1	03CG-E221
	5	Analytical	4.6 x 100	1	03CG-E321
	5	Analytical	4.6 x 150	1	03CG-E421
	5	Analytical	4.6 x 250	1	03CG-E521
	5	Prep	10.0 x 150	1	03CG-H421
	5	Prep	10.0 x 250	1	03CG-H521
	5	Prep	21.2 x 150	1	03CG-I421
	5	Prep	21.2 x 250	1	03CG-I521
	10	Analytical	4.6 x 250	1	03CG-E531
	10	Prep	10.0 x 150	1	03CG-H431
	10	Prep	10.0 x 250	1	03CG-H531
	10	Prep	21.2 x 150	1	03CG-I431
	10	Prep	21.2 x 250	1	03CG-I531
	10	Prep	30.0 x 150	1	03CG-J431
	10	Prep	30.0 x 250	1	03CG-J531
	10	Prep	50.0 x 150	1	03CG-K431
	10	Prep	50.0 x 250	1	03CG-K531

Ordering Information					
Phase	Particle Size (µm)	Formats	I.D. Length (mm)	QTY	Part No.
VertiSep™ UPS					
HILIC	3	Ultra-Fast	2.1 x 10	1	03C3-B111
	3	Ultra-Fast	2.1 x 20	1	03C3-B611
	3	Ultra-Fast	2.1 x 50	1	03C3-B211
	3	LC/MS	2.1 x 100	1	03C3-B311
	3	LC/MS	2.1 x 150	1	03C3-B411
	3	LC/MS	3.2 x 100	1	03C3-C311
	3	LC/MS	3.2 x 150	1	03C3-C411
	3	Hi-Speed	4.6 x 50	1	03C3-E211
	3	Analytical	4.6 x 100	1	03C3-E311
	3	Analytical	4.6 x 150	1	03C3-E411
	3	Hi-Speed	7.8 x 50	1	03C3-G211
	3	Analytical	7.8 x 100	1	03C3-G311
	5	LC/MS	2.1 x 100	1	03C3-B321
	5	LC/MS	2.1 x 150	1	03C3-B421
	5	LC/MS	2.1 x 250	1	03C3-B521
	5	LC/MS	3.2 x 100	1	03C3-C321
	5	LC/MS	3.2 x 150	1	03C3-C421
	5	LC/MS	3.2 x 250	1	03C3-C521
	5	Hi-Speed	4.6 x 50	1	03C3-E221
	5	Analytical	4.6 x 100	1	03C3-E321
	5	Analytical	4.6 x 150	1	03C3-E421
	5	Analytical	4.6 x 250	1	03C3-E521
	5	Prep	10.0 x 150	1	03C3-H421
	5	Prep	10.0 x 250	1	03C3-H521
	5	Prep	21.2 x 150	1	03C3-I421
	5	Prep	21.2 x 250	1	03C3-I521
	10	Analytical	4.6 x 250	1	03C3-E531
	10	Prep	10.0 x 150	1	03C3-H431
	10	Prep	10.0 x 250	1	03C3-H531
	10	Prep	21.2 x 150	1	03C3-I431
	10	Prep	21.2 x 250	1	03C3-I531
	10	Prep	30.0 x 150	1	03C3-J431
	10	Prep	30.0 x 250	1	03C3-J531
	10	Prep	50.0 x 150	1	03C3-K431
	10	Prep	50.0 x 250	1	03C3-K531

HPLC Columns

Ordering Information					
Phase	Particle Size (µm)	Formats	I.D. Length (mm)	QTY	Part No.
VertiSep™ UPS					
PFP	3	Ultra-Fast	2.1 x 10	1	03C5-B111
	3	Ultra-Fast	2.1 x 20	1	03C5-B611
	3	Ultra-Fast	2.1 x 50	1	03C5-B211
	3	LC/MS	2.1 x 100	1	03C5-B311
	3	LC/MS	2.1 x 150	1	03C5-B411
	3	LC/MS	3.2 x 100	1	03C5-C311
	3	LC/MS	3.2 x 150	1	03C5-C411
	3	Hi-Speed	4.6 x 50	1	03C5-E211
	3	Analytical	4.6 x 100	1	03C5-E311
	3	Analytical	4.6 x 150	1	03C5-E411
	3	Hi-Speed	7.8 x 50	1	03C5-G211
	3	Analytical	7.8 x 100	1	03C5-G311
	5	LC/MS	2.1 x 100	1	03C5-B321
	5	LC/MS	2.1 x 150	1	03C5-B421
	5	LC/MS	2.1 x 250	1	03C5-B521
	5	LC/MS	3.2 x 100	1	03C5-C321
	5	LC/MS	3.2 x 150	1	03C5-C421
	5	LC/MS	3.2 x 250	1	03C5-C521
	5	Hi-Speed	4.6 x 50	1	03C5-E221
	5	Analytical	4.6 x 100	1	03C5-E321
	5	Analytical	4.6 x 150	1	03C5-E421
	5	Analytical	4.6 x 250	1	03C5-E521
	5	Prep	10.0 x 150	1	03C5-H421
	5	Prep	10.0 x 250	1	03C5-H521
	5	Prep	21.2 x 150	1	03C5-I421
	5	Prep	21.2 x 250	1	03C5-I521
	10	Analytical	4.6 x 250	1	03C5-E531
	10	Prep	10.0 x 150	1	03C5-H431
	10	Prep	10.0 x 250	1	03C5-H531
	10	Prep	21.2 x 150	1	03C5-I431
	10	Prep	21.2 x 250	1	03C5-I531
	10	Prep	30.0 x 150	1	03C5-J431
	10	Prep	30.0 x 250	1	03C5-J531
	10	Prep	50.0 x 150	1	03C5-K431
	10	Prep	50.0 x 250	1	03C5-K531



Ordering Information					
Phase	Particle Size (µm)	Formats	I.D. Length (mm)	QTY	Part No.
VertiSep™ UPS Guard					
C18	3	Guard	2.1 x 10	2	03CA-B113
	3	Guard	3.2 x 10	2	03CA-C113
	3	Guard	4.6 x 10	2	03CA-E113
	5	Guard	2.1 x 10	2	03CA-B123
	5	Guard	3.2 x 10	2	03CA-C123
	5	Guard	4.6 x 10	2	03CA-E123
	5	Guard	10.0 x 10	2	03CA-H123
	5	Guard	21.2 x 10	2	03CA-I123
	10	Guard	4.6 x 10	2	03CA-E133
	10	Guard	10.0 x 10	2	03CA-H133
C8	3	Guard	2.1 x 10	2	03CB-B113
	3	Guard	3.2 x 10	2	03CB-C113
	3	Guard	4.6 x 10	2	03CB-E113
	5	Guard	2.1 x 10	2	03CB-B123
	5	Guard	3.2 x 10	2	03CB-C123
	5	Guard	4.6 x 10	2	03CB-E123
	5	Guard	10.0 x 10	2	03CB-H123
	5	Guard	21.2 x 10	2	03CB-I123
	10	Guard	4.6 x 10	2	03CB-E133
	10	Guard	10.0 x 10	2	03CB-H133
Ph	3	Guard	2.1 x 10	2	03CD-B113
	3	Guard	3.2 x 10	2	03CD-C113
	3	Guard	4.6 x 10	2	03CD-E113
	5	Guard	2.1 x 10	2	03CD-B123
	5	Guard	3.2 x 10	2	03CD-C123
	5	Guard	4.6 x 10	2	03CD-E123
	5	Guard	10.0 x 10	2	03CD-H123
	5	Guard	21.2 x 10	2	03CD-I123
	10	Guard	4.6 x 10	2	03CD-E133
	10	Guard	10.0 x 10	2	03CD-H133
CN	3	Guard	2.1 x 10	2	03CC-B113
	3	Guard	3.2 x 10	2	03CC-C113
	3	Guard	4.6 x 10	2	03CC-E113
	5	Guard	2.1 x 10	2	03CC-B123
	5	Guard	3.2 x 10	2	03CC-C123
	5	Guard	4.6 x 10	2	03CC-E123
	5	Guard	10.0 x 10	2	03CC-H123
	5	Guard	21.2 x 10	2	03CC-I123
	10	Guard	4.6 x 10	2	03CC-E133
	10	Guard	10.0 x 10	2	03CC-H133
10	Guard	21.2 x 10	2	03CC-I133	

Ordering Information					
Phase	Particle Size (µm)	Formats	I.D. Length (mm)	QTY	Part No.
VertiSep™ UPS Guard*					
Si	3	Guard	2.1 x 10	2	03CG-B113
	3	Guard	3.2 x 10	2	03CG-C113
	3	Guard	4.6 x 10	2	03CG-E113
	5	Guard	2.1 x 10	2	03CG-B123
	5	Guard	3.2 x 10	2	03CG-C123
	5	Guard	4.6 x 10	2	03CG-E123
	5	Guard	10.0 x 10	2	03CG-H123
	5	Guard	21.2 x 10	2	03CG-I123
	10	Guard	4.6 x 10	2	03CG-E133
	10	Guard	10.0 x 10	2	03CG-H133
HILIC	3	Guard	2.1 x 10	2	03C3-B113
	3	Guard	3.2 x 10	2	03C3-C113
	3	Guard	4.6 x 10	2	03C3-E113
	5	Guard	2.1 x 10	2	03C3-B123
	5	Guard	3.2 x 10	2	03C3-C123
	5	Guard	4.6 x 10	2	03C3-E123
	5	Guard	10.0 x 10	2	03C3-H123
	5	Guard	21.2 x 10	2	03C3-I123
	10	Guard	4.6 x 10	2	03C3-E133
	10	Guard	10.0 x 10	2	03C3-H133
PFP	3	Guard	2.1 x 10	2	03C5-B113
	3	Guard	3.2 x 10	2	03C5-C113
	3	Guard	4.6 x 10	2	03C5-E113
	5	Guard	2.1 x 10	2	03C5-B123
	5	Guard	3.2 x 10	2	03C5-C123
	5	Guard	4.6 x 10	2	03C5-E123
	5	Guard	10.0 x 10	2	03C5-H123
	5	Guard	21.2 x 10	2	03C5-I123
	10	Guard	4.6 x 10	2	03C5-E133
	10	Guard	10.0 x 10	2	03C5-H133
10	Guard	21.2 x 10	2	03C5-I133	

*Guard holder required

Ordering Information		
Description	QTY	Part No.
Guard Holder with Coupler		
For column I.D. 2.1-7.8 mm	1	0300-0001
For column I.D. 10 mm	1	0300-0002
For column I.D. 21.2 mm	1	0300-0003

