

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
- High carbon loading C18 offers the high degree of hydrophobicity
- Fully endcapped to improve peak shape
- Monomeric bonding offers low back pressure and high column efficiency to better resolve chemically similar analytes.



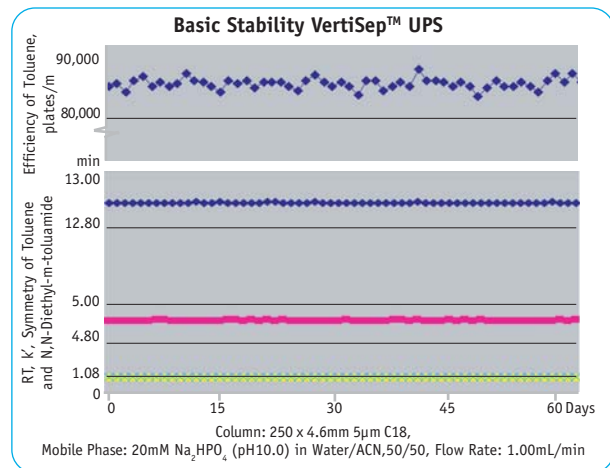
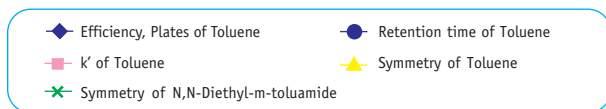
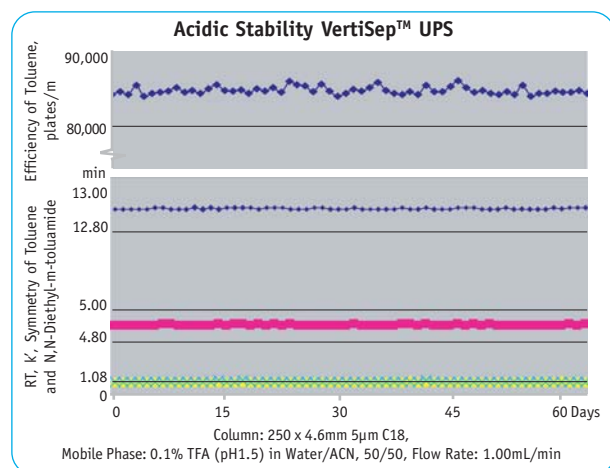
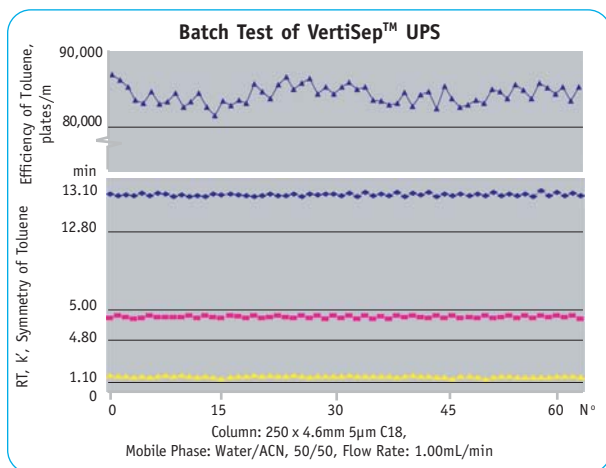
VertiSep™ UPS packings are ultra-high purity spherical silica which contains less amounts of metal ions and sulfate contaminants offering ultra performance with excellent stability at pH 1.5-10.0*, excellent efficiency, column-to-column reproducibility, long lifetime and ideal for LC/MS or ELSD applications.

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.

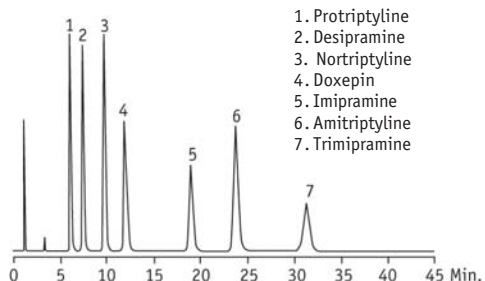
VertiSep™ UPS Packing Specifications

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

HPLC Columns



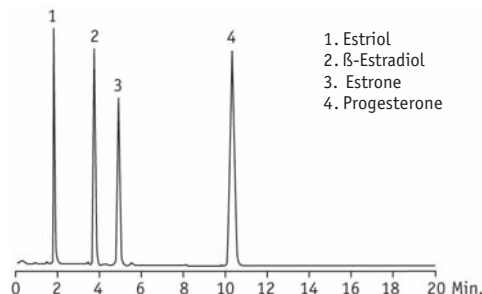
Tricyclic antidepressants



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: UV240nm

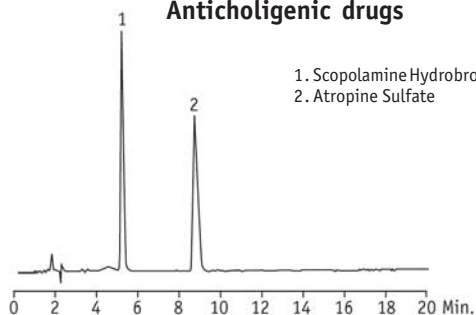
Steroids



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

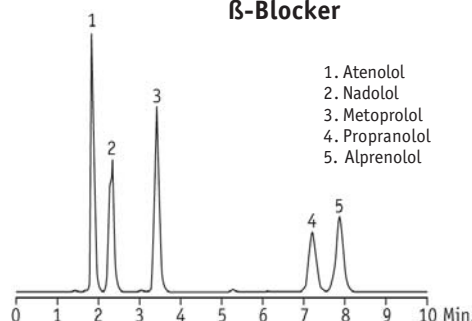
Anticholinergic drugs



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

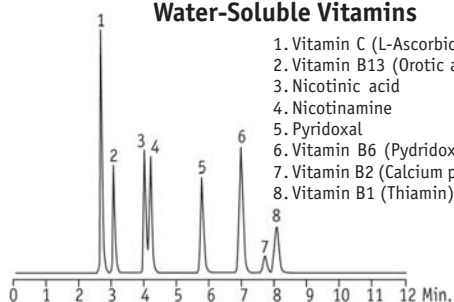
β-Blocker



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

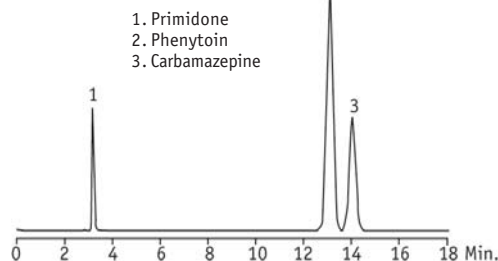
Water-Soluble Vitamins



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

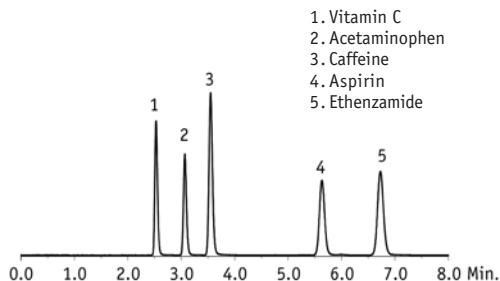
Antiepileptics



1. Primidone
2. Phenytoin
3. Carbamazepine

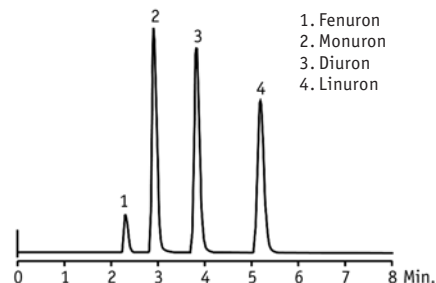
Column: VertiSep™ UPS C18 5µm 4.6x150mm
 Mobile Phase: CH₃CN/20mM KH₂PO₄ -K₂HPO₄ (pH 7.0)=70/30
 Flow Rate: 1.0mL/min
 Detection: UV220nm

Cold Medicine Components



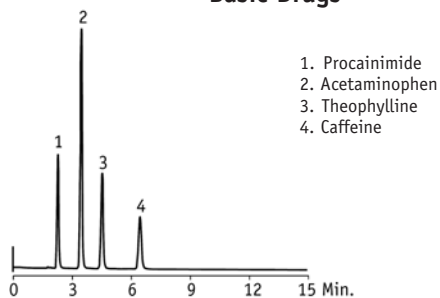
Column: VertiSep™ UPS C18 5µm 4.6x250mm
Mobile Phase: 50:50 MeOH/50mM KH₂PO₄ (pH 3.0)
Flow Rate: 1.0mL/min
Detection: UV220nm

Herbicides



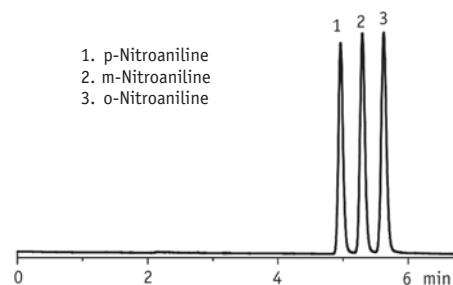
Column: VertiSep™ UPS CN 5µm 4.6x150mm
Mobile Phase: Water:Acetonitrile (60:40)
Flow Rate: 1.0mL/min
Detection: UV254nm

Basic Drugs



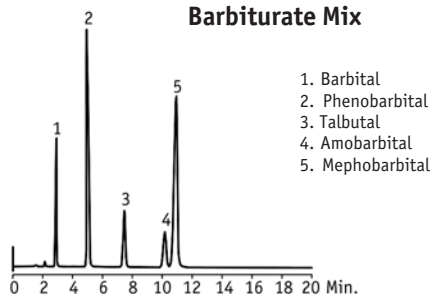
Column: VertiSep™ UPS C8 5µm 4.6x150mm
Mobile Phase: 0.05M Phosphate Buffer pH3.0:Methanol (80:20)
Flow Rate: 1.0mL/min
Detection: UV254nm

Nitroanilines



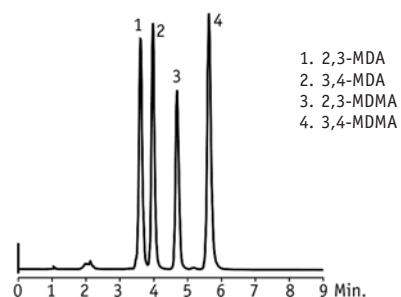
Column: VertiSep™ UPS Ph 5µm 4.6x250mm
Mobile Phase: 50:50 MeCN/50mM K₂HPO₄ (pH 3.15)
Flow Rate: 1.0mL/min
Detection: UV254nm

Barbiturate Mix



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

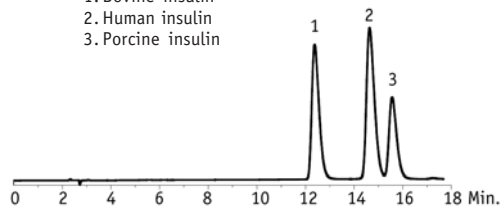
MDA and MDMA Analogs



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

Insulins

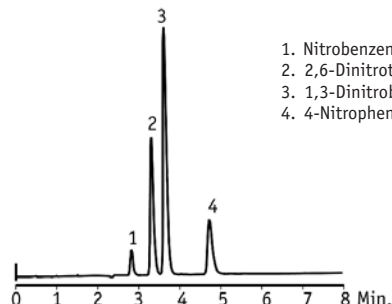
1. Bovine insulin
2. Human insulin
3. Porcine insulin



Column: VertiSep™ UPS C18 5µm 4.6x250mm
 Mobile Phase: A. 29:71 MeCN/H₂O + 0.1% TFA
 B. 32:68 MeCN/H₂O + 0.1% TFA
 Gradient: T/%B, 0/10, 16/90
 Flow Rate: 1.0mL/min
 Detection: UV 215nm

Nitroaromatics

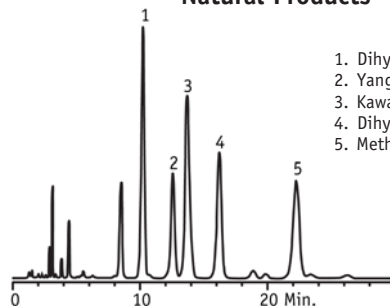
1. Nitrobenzene
2. 2,6-Dinitrotoluene
3. 1,3-Dinitrobenzene
4. 4-Nitrophenol



Column: VertiSep™ UPS CN 5µm 4.6x150mm
 Mobile Phase: Hexane:Isopropanol (85:15)
 Flow Rate: 1.0mL/min
 Detection: UV254nm

Natural Products

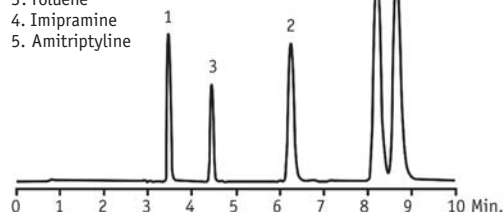
1. Dihydrokawain
2. Yangonin
3. Kawain
4. Dihydromethysticin
5. Methysticin



Column: VertiSep™ UPS Si 5µm 4.6x150mm
 Mobile Phase: Hexane/Dioxane (85:15)
 Flow Rate: 1.5mL/min
 Detection: UV 230nm

Amitriptyline

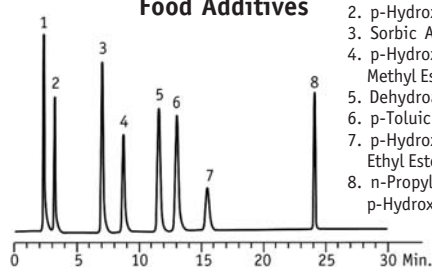
1. Norephedrine
2. Nortriptyline
3. Toluene
4. Imipramine
5. Amitriptyline



Column: VertiSep™ UPS Ph 5µm 4.6x250mm
 Mobile Phase: 20% 0.025M KH₂PO₄, pH 6.0 80% MeOH
 Flow Rate: 1.0mL/min
 Detection: UV254nm

Food Additives

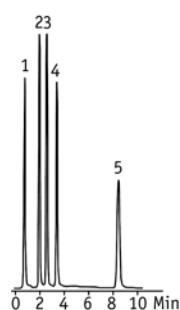
1. Saccharin
2. p-Hydroxybenzoic Acid
3. Sorbic Acid
4. p-Hydroxybenzoic Acid Methyl Ester
5. Dehydroacetic Acid
6. p-Toluic Acid
7. p-Hydroxybenzoic Acid Ethyl Ester
8. n-Propyl p-Hydroxybenzoate



Column: VertiSep™ UPS Ph 5µm 4.6x150mm
 Mobile Phase: A: 50mM KH₂PO₄ + 0.1% H₃PO₄
 B: Acetonitrile
 Gradient: A/B (75:25) for 18 min, to A/B (25:75) in 12 min
 Flow Rate: 1.0mL/min
 Detection: UV230nm

Glucocorticoids

1. Dexamethasone 21-Phosphate
2. Prednisolone
3. Dexamethasone
4. Prednisolone 21-Acetate
5. Betamethasone 17-Valerate



Column: VertiSep™ UPS C8 5µm 4.6x150mm
 Mobile Phase: Acetonitrile/Water (50:50)
 Flow Rate: 1.0mL/min
 Detection: UV240nm

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

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

VertiSep™ UPS

HPLC Columns

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

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

VertiSep™ UPS Columns

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

Guard Holder with Coupler

Guard Holder with Coupler	QTY	Part NO.
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



VertiSep™ UPS Guard Cartridges*, 2/PK

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

*Guard holder required