

## VertiSep™ GES HPLC Columns

- High purity Silica offer high stability, efficiency, reproducibility
- Moderate pore size and surface area are perfect for general purpose
- High carbon loading C18 offers high degree of hydrophobicity for high resolution of organic compounds that have similar structures
- Fully endcapped to improve peak symmetry
- Polymeric bonding offers high stability and longer column lifetime
- Economic Price

VertiSep™ GES packings are high purity Silica which contains less amounts of metal ions and sulfate contaminants offer high stability at pH 1.5-10.0\*, efficiency, column-to-column reproducibility.

VertiSep™ GES packings are moderate pore size and surface area proving general purpose separations of variety of compounds.

VertiSep™ GES reverse phase C18 packings are high carbon loading of 17% offering the high degree of hydrophobicity for high resolution of organic compounds that have similar structures such as Polynuclear Aromatic Hydrocarbons, Benzidines, Vitamins D2, D3, Amino acids.

VertiSep™ GES reverse phase packings are fully endcapped and show selectivity as conventional C18 phases.

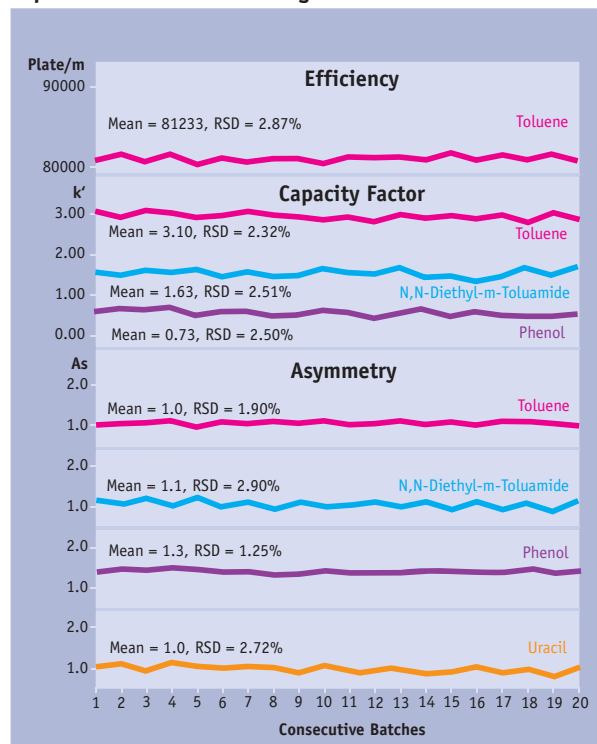
VertiSep™ GES packings are polymeric bonding resulting high stability and longer column lifetime.

VertiSep™ GES 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.



Specifications						
Packing	Particle Size (mm)	Carbon Load (%)	Pore Size (Å)	Pore Volume (mL/g)	Surface Area (m <sup>2</sup> /g)	End Capped
C18	3,5,10	17	120	1.0	300	Yes
C8	3,5,10	13	120	1.0	300	Yes
Ph	3,5,10	8	120	1.0	300	Yes
C4	3,5,10	6	120	1.0	300	Yes
CN	3,5,10	3.5	120	1.0	300	Yes
NH2	3,5,10	3	120	1.0	300	No
Si	3,5,10	-	120	1.0	300	No
SAX	5	4	120	1.0	300	No
SCX	5	4	120	1.0	300	No

### Reproducible Column Packing Method Controls

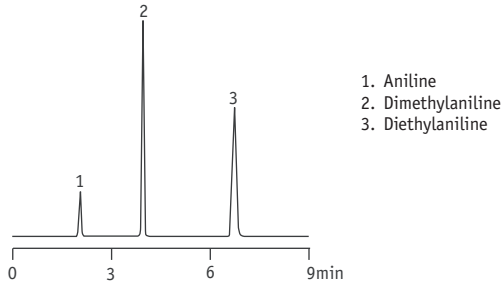


#### Test Conditions

Column: VertiSep™ GES C18, 5µm, 4.6x250mm  
 Mobile Phase: 60:40 Acetonitrile/Water  
 Flow Rate: 1.0mL/min  
 Detector: UV254nm  
 Sample: Reversed phase test mix

\* VertiSep™ GES CN is stable at pH 1.5-7.0 packing

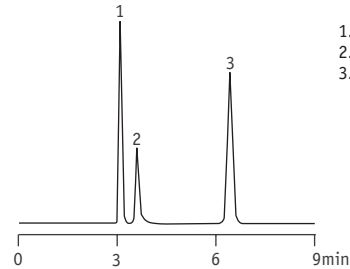
## Aromatic Bases



1. Aniline
2. Dimethylaniline
3. Diethylaniline

Column: VertiSep™ GES C18 5µm 150x4.6mm  
 Mobile Phase: Acetonitrile:Water:TEA (65:34:1)  
 Flow Rate: 1.0mL/min  
 Detection: UV254nm

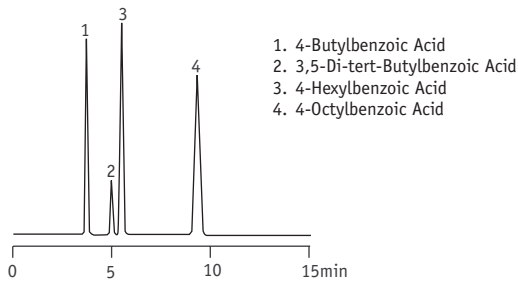
## Aromatic Acid



1. Homovanilic Acid
2. Benzoic Acid
3. Salicylic Acid

Column: VertiSep™ GES C18 5µm 150x4.6mm  
 Mobile Phase: 0.05M KH<sub>2</sub>PO<sub>4</sub> (pH3.2):Methanol (60:40)  
 Flow Rate: 1.0mL/min  
 Detection: UV254nm

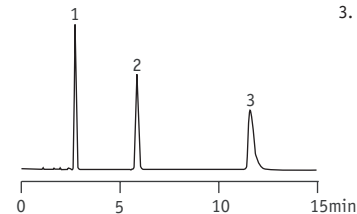
## Alkyl Benzoic Acids



1. 4-Butylbenzoic Acid
2. 3,5-Di-tert-Butylbenzoic Acid
3. 4-Hexylbenzoic Acid
4. 4-Octylbenzoic Acid

Column: VertiSep™ GES C18 5µm 150x4.6mm  
 Mobile Phase: Acetonitrile:Water:Acetic (65:34:1)  
 Flow Rate: 1.0mL/min  
 Detection: UV254nm

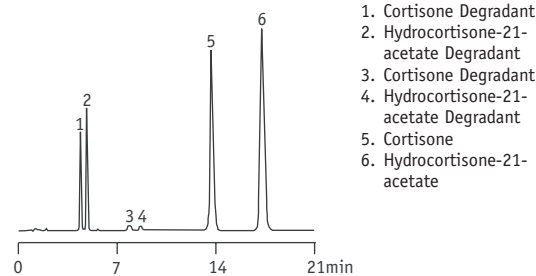
## Steroids



1. Hydrocortisone
2. Testosterone
3. Progesterone

Column: VertiSep™ GES C18 5µm 150x4.6mm  
 Mobile Phase: Methanol:Water (70:30)  
 Flow Rate: 1.0mL/min  
 Detection: UV254nm

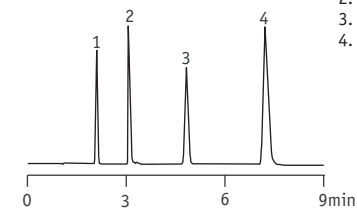
## Steroids



1. Cortisone Degradant
2. Hydrocortisone-21-acetate Degradant
3. Cortisone Degradant
4. Hydrocortisone-21-acetate Degradant
5. Cortisone
6. Hydrocortisone-21-acetate

Column: VertiSep™ GES C18 5µm 150x4.6mm  
 Mobile Phase: 50mM KH<sub>2</sub>PO<sub>4</sub> (pH2.75):Acetonitrile (65:35)  
 Flow Rate: 1.0mL/min  
 Detection: UV252nm

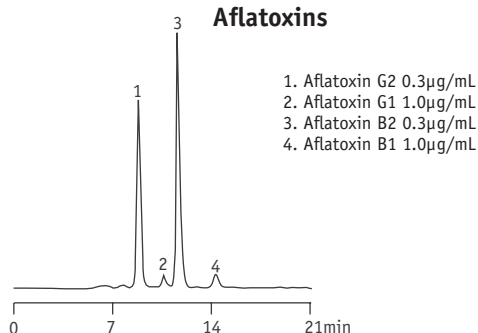
## Acids and Bases



1. N,N-Diethylaniline
2. Phenylacetic Acid
3. N,N-Dimethylaniline
4. Phenylvaleric Acid

Column: VertiSep™ GES C18 5µm 150x4.6mm  
 Mobile Phase: Acetonitrile:0.05M Potassium Phosphate Buffer (pH3.0), (45:55)  
 Flow Rate: 1.0mL/min  
 Detection: UV254nm

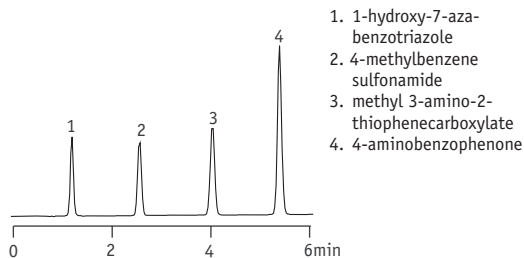
## Aflatoxins



1. Aflatoxin G2 0.3µg/mL
2. Aflatoxin G1 1.0µg/mL
3. Aflatoxin B2 0.3µg/mL
4. Aflatoxin B1 1.0µg/mL

Column: VertiSep™ GES C18 5µm 4.6x250mm  
 Mobile Phase: Water:Acetonitrile:Methanol (60:20:20)  
 Flow Rate: 1.0mL/min  
 Detection: UV365nm

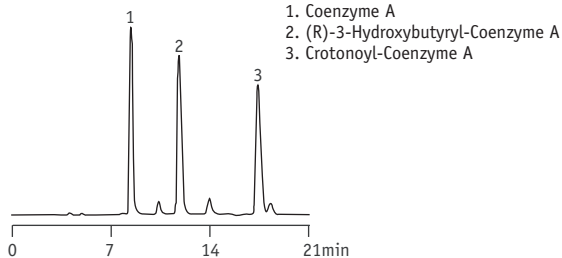
## Aromatic Ketone



1. 1-hydroxy-7-aza-benzotriazole
2. 4-methylbenzene sulfonamide
3. methyl 3-amino-2-thiophenecarboxylate
4. 4-aminobenzophenone

Column: VertiSep™ GES C18 5µm 4.6x100mm  
 Mobile Phase: A: 0.1%TFA in water  
 B: 0.08%TFA in acetonitrile  
 Gradient: Time:%B: 0:0, 4:60  
 Flow Rate: 1.0mL/min  
 Detection: UV254nm

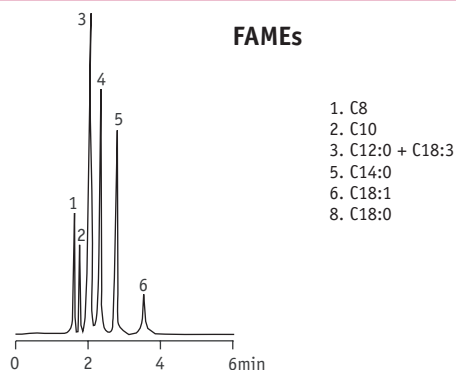
## Coenzyme A



1. Coenzyme A
2. (R)-3-Hydroxybutyryl-Coenzyme A
3. Crotonoyl-Coenzyme A

Column: VertiSep™ GES C18 5µm 4.6x250mm  
 Mobile Phase: A: Methanol:10mM KH<sub>2</sub>PO<sub>4</sub> (pH6.5), (0:100)  
 B: Methanol:10mM KH<sub>2</sub>PO<sub>4</sub> (pH6.5), (40:60)  
 Gradient: Time:%B: 0/30, 10/80  
 Flow Rate: 0.8mL/min  
 Detection: UV260nm

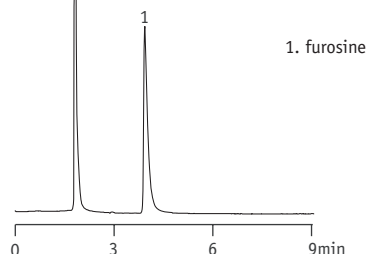
## FAMES



1. C8
2. C10
3. C12:0 + C18:3
5. C14:0
6. C18:1
8. C18:0

Column: VertiSep™ GES C18 5µm 4.6x250mm  
 Mobile Phase: Acetonitrile:Acetone (60:40)  
 Flow Rate: 1.0mL/min  
 Detection: R401 refractometer

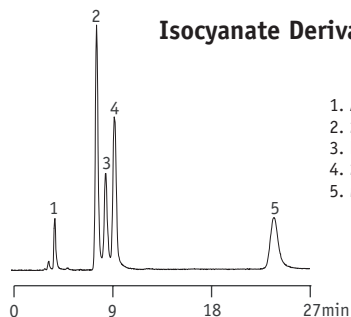
## Furosine



1. furosine

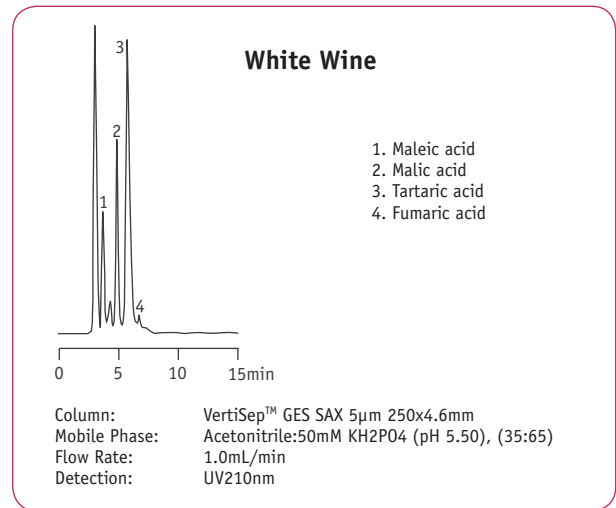
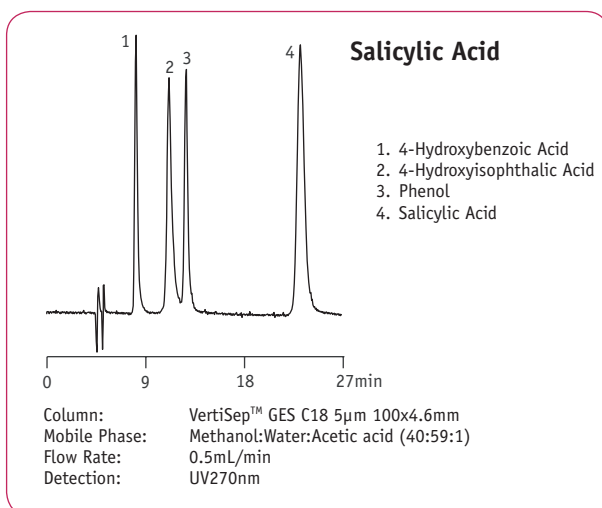
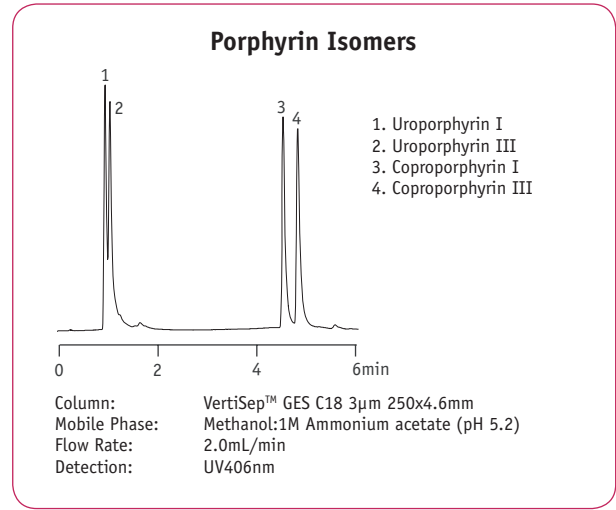
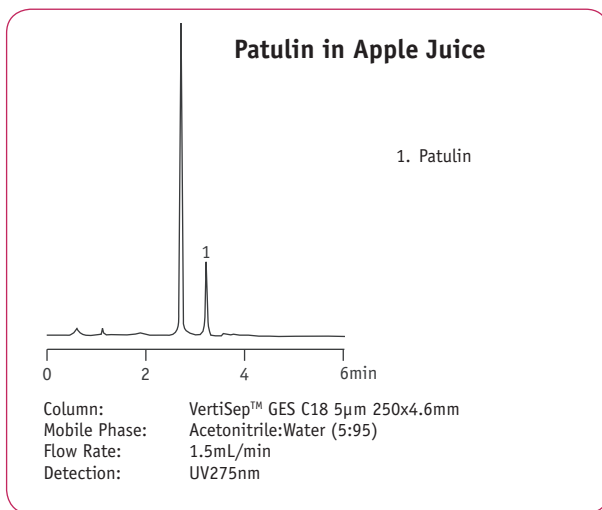
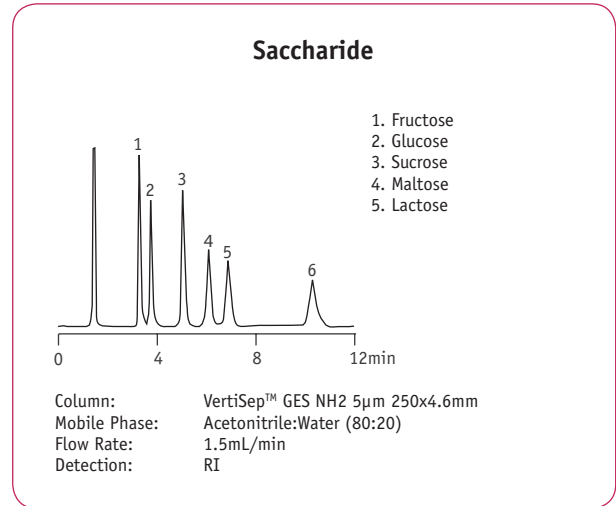
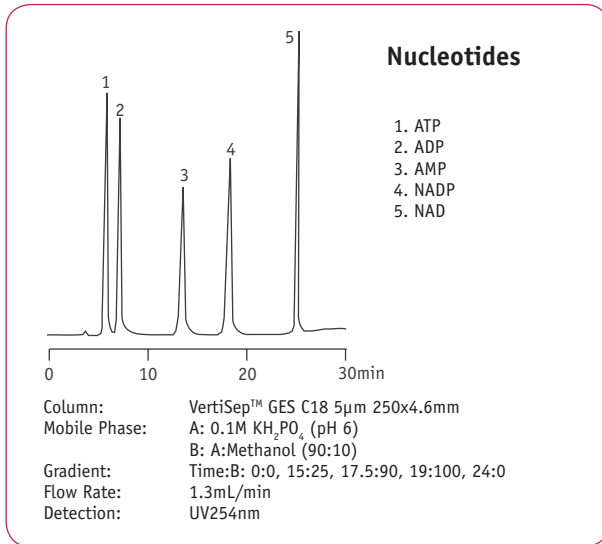
Column: VertiSep™ GES C8 5µm 4.6x250mm  
 Mobile Phase: 0.06M sodium acetate (pH 4.3) with acetic acid  
 Flow Rate: 2.0mL/min  
 Detection: UV280nm, 0.1 AUFS

## Isocyanate Derivatives Mixture

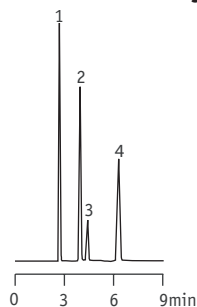


1. ACN/DMSO
2. 2,6-TDI
3. HDI
4. 2,4-TDI
5. MDI

Column: VertiSep™ GES CN 5µm 4.6x250mm  
 Mobile Phase: 0.05M Ammonium acetate in Water:Acetonitrile (70:30), (pH 6.0)  
 Flow Rate: 0 min - 1mL/min  
 15 min - 2mL/min  
 Detection: Fluorescence, 240nm excitation, 370nm emission



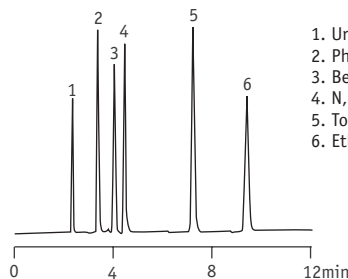
## Alkyl Benzoic Acids



1. 4-Butylbenzoic Acid
2. 3,5,-di-tert-Butylbenzoic Acid
3. 4-Hexylbenzoic Acid
4. 4-Octylbenzoic Acid

Column: VertiSep™ GES C8 5µm 4.6x150mm  
 Mobile Phase: Acetonitrile:Water:Acetic Acid (65:34:1)  
 Flow Rate: 1.0mL/min  
 Detection: UV254nm

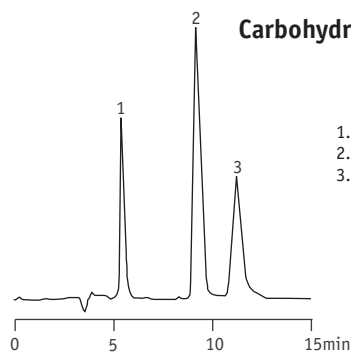
## Base/Neutral Mix



1. Uracil
2. Phenol
3. Benzaldehyde
4. N,N-Diethyl-m-toluamide
5. Toluene
6. Ethylbenzene

Column: VertiSep™ GES C18 5µm 4.6x250mm  
 Mobile Phase: Acetonitrile:Water (65:35)  
 Flow Rate: 1.0mL/min  
 Detection: UV254nm

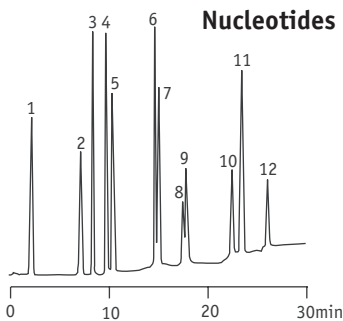
## Carbohydrates from Wine



1. Ethanol
2. Glucose
3. Sucrose

Column: VertiSep™ GES NH2 10µm 4.6x250mm  
 Mobile Phase: Acetonitrile:Water (75:25)  
 Flow Rate: 3.0mL/min  
 Detection: RI

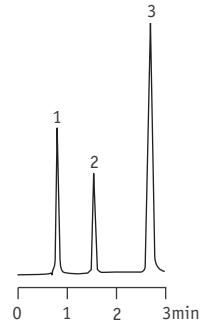
## Nucleotides



1. CMP
2. AMP
3. UMP
4. GMP
5. CDP
6. ADP
7. UDP
8. CTP
9. GDP
10. ATP
11. UTP
12. GTP

Column: VertiSep™ GES SAX 5µm 4.6x250mm  
 Mobile Phase: A: 5mM NH<sub>4</sub>H<sub>2</sub>PO<sub>4</sub> (pH2.8)  
 B: 750mM NH<sub>4</sub>H<sub>2</sub>PO<sub>4</sub> (pH 3.7)  
 Gradient: Time:%B: 0:0, 3:100  
 Flow Rate: 1.0mL/min  
 Detection: UV254nm

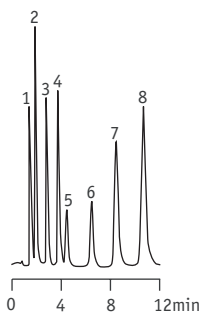
## Aromatic Hydrocarbons



1. Toluene
2. Nitrobenzene
3. 2,6-Dinitrotoluene

Column: VertiSep™ GES CN 5µm 4.6x100mm  
 Mobile Phase: 1% Ethyl Acetate in Hexane  
 Flow Rate: 2.0mL/min  
 Detection: UV254nm

## Aromatic Ketones



1. Benzamide
2. Benzyl Alcohol
3. Acetophenone
4. Methyl Benzoate
5. Phenetole
6. Naphthalene
7. Benzophenone
8. Biphenyl

Column: VertiSep™ GES PH 5µm 4.6x100mm  
 Mobile Phase: Methanol:Water (60:40)  
 Flow Rate: 1.0mL/min  
 Detection: UV254nm

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

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



# VertiSep™ GES

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	3	Ultra-Fast	2.1 x 20	1	03AD-B611
	3	Ultra-Fast	2.1 x 50	1	03AD-B211
3	LC/MS	2.1 x 100	1	03AD-B311	
3	LC/MS	2.1 x 150	1	03AD-B411	
3	LC/MS	3.2 x 100	1	03AD-C311	
3	LC/MS	3.2 x 150	1	03AD-C411	
3	Hi-Speed	4.6 x 50	1	03AD-E211	
3	Analytical	4.6 x 100	1	03AD-E311	
3	Analytical	4.6 x 150	1	03AD-E411	
3	Hi-Speed	7.8 x 50	1	03AD-G211	
3	Analytical	7.8 x 100	1	03AD-G311	
5	LC/MS	2.1 x 100	1	03AD-B321	
5	LC/MS	2.1 x 150	1	03AD-B421	
5	LC/MS	2.1 x 250	1	03AD-B521	
5	LC/MS	3.2 x 100	1	03AD-C321	
5	LC/MS	3.2 x 150	1	03AD-C421	
5	LC/MS	3.2 x 250	1	03AD-C521	
5	Hi-Speed	4.6 x 50	1	03AD-E221	
5	Analytical	4.6 x 100	1	03AD-E321	
5	Analytical	4.6 x 150	1	03AD-E421	
5	Analytical	4.6 x 250	1	03AD-E521	
5	Prep	10.0 x 150	1	03AD-H421	
5	Prep	10.0 x 250	1	03AD-H521	
5	Prep	21.2 x 150	1	03AD-I421	
5	Prep	21.2 x 250	1	03AD-I521	
10	Analytical	4.6 x 250	1	03AD-E531	
10	Prep	10.0 x 150	1	03AD-H431	
10	Prep	10.0 x 250	1	03AD-H531	
10	Prep	21.2 x 150	1	03AD-I431	
10	Prep	21.2 x 250	1	03AD-I531	
10	Prep	30.0 x 150	1	03AD-J431	
10	Prep	30.0 x 250	1	03AD-J531	
10	Prep	50.0 x 150	1	03AD-K431	
10	Prep	50.0 x 250	1	03AD-K531	

Ordering Information					
Phase	Particle Size (µm)	Formats	I.D. Length (mm)	QTY	Part No.
<b>VertiSep™ GES</b>					
C4	3	Ultra-Fast	2.1 x 10	1	03AC-B111
	3	Ultra-Fast	2.1 x 20	1	03AC-B611
	3	Ultra-Fast	2.1 x 50	1	03AC-B211
3	LC/MS	2.1 x 100	1	03AC-B311	
3	LC/MS	2.1 x 150	1	03AC-B411	
3	LC/MS	3.2 x 100	1	03AC-C311	
3	LC/MS	3.2 x 150	1	03AC-C411	
3	Hi-Speed	4.6 x 50	1	03AC-E211	
3	Analytical	4.6 x 100	1	03AC-E311	
3	Analytical	4.6 x 150	1	03AC-E411	
3	Hi-Speed	7.8 x 50	1	03AC-G211	
3	Analytical	7.8 x 100	1	03AC-G311	
5	LC/MS	2.1 x 100	1	03AC-B321	
5	LC/MS	2.1 x 150	1	03AC-B421	
5	LC/MS	2.1 x 250	1	03AC-B521	
5	LC/MS	3.2 x 100	1	03AC-C321	
5	LC/MS	3.2 x 150	1	03AC-C421	
5	LC/MS	3.2 x 250	1	03AC-C521	
5	Hi-Speed	4.6 x 50	1	03AC-E221	
5	Analytical	4.6 x 100	1	03AC-E321	
5	Analytical	4.6 x 150	1	03AC-E421	
5	Analytical	4.6 x 250	1	03AC-E521	
5	Prep	10.0 x 150	1	03AC-H421	
5	Prep	10.0 x 250	1	03AC-H521	
5	Prep	21.2 x 150	1	03AC-I421	
5	Prep	21.2 x 250	1	03AC-I521	
10	Analytical	4.6 x 250	1	03AC-E531	
10	Prep	10.0 x 150	1	03AC-H431	
10	Prep	10.0 x 250	1	03AC-H531	
10	Prep	21.2 x 150	1	03AC-I431	
10	Prep	21.2 x 250	1	03AC-I531	
10	Prep	30.0 x 150	1	03AC-J431	
10	Prep	30.0 x 250	1	03AC-J531	
10	Prep	50.0 x 150	1	03AC-K431	
10	Prep	50.0 x 250	1	03AC-K531	



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

Ordering Information					
Phase	Particle Size (µm)	Formats	I.D. Length (mm)	QTY	Part No.
<b>VertiSep™ GES</b>					
NH2	3	Ultra-Fast	2.1 x 10	1	03AF-B111
	3	Ultra-Fast	2.1 x 20	1	03AF-B611
	3	Ultra-Fast	2.1 x 50	1	03AF-B211
	3	LC/MS	2.1 x 100	1	03AF-B311
	3	LC/MS	2.1 x 150	1	03AF-B411
	3	LC/MS	3.2 x 100	1	03AF-C311
	3	LC/MS	3.2 x 150	1	03AF-C411
	3	Hi-Speed	4.6 x 50	1	03AF-E211
	3	Analytical	4.6 x 100	1	03AF-E311
	3	Analytical	4.6 x 150	1	03AF-E411
	3	Hi-Speed	7.8 x 50	1	03AF-G211
	3	Analytical	7.8 x 100	1	03AF-G311
	5	LC/MS	2.1 x 100	1	03AF-B321
	5	LC/MS	2.1 x 150	1	03AF-B421
	5	LC/MS	2.1 x 250	1	03AF-B521
	5	LC/MS	3.2 x 100	1	03AF-C321
	5	LC/MS	3.2 x 150	1	03AF-C421
	5	LC/MS	3.2 x 250	1	03AF-C521
	5	Hi-Speed	4.6 x 50	1	03AF-E221
	5	Analytical	4.6 x 100	1	03AF-E321
	5	Analytical	4.6 x 150	1	03AF-E421
	5	Analytical	4.6 x 250	1	03AF-E521
	5	Prep	10.0 x 150	1	03AF-H421
	5	Prep	10.0 x 250	1	03AF-H521
	5	Prep	21.2 x 150	1	03AF-I421
	5	Prep	21.2 x 250	1	03AF-I521
	10	Analytical	4.6 x 250	1	03AF-E531
	10	Prep	10.0 x 150	1	03AF-H431
	10	Prep	10.0 x 250	1	03AF-H531
	10	Prep	21.2 x 150	1	03AF-I431
	10	Prep	21.2 x 250	1	03AF-I531
	10	Prep	30.0 x 150	1	03AF-J431
	10	Prep	30.0 x 250	1	03AF-J531
10	Prep	50.0 x 150	1	03AF-K431	
10	Prep	50.0 x 250	1	03AF-K531	



# VertiSep™ GES

## HPLC Columns

Ordering Information					
Phase	Particle Size (µm)	Formats	I.D. Length (mm)	QTY	Part No.
<b>VertiSep™ GES</b>					
Silica	3	Ultra-Fast	2.1 x 10	1	03AG-B111
	3	Ultra-Fast	2.1 x 20	1	03AG-B611
	3	Ultra-Fast	2.1 x 50	1	03AG-B211
	3	LC/MS	2.1 x 100	1	03AG-B311
	3	LC/MS	2.1 x 150	1	03AG-B411
	3	LC/MS	3.2 x 100	1	03AG-C311
	3	LC/MS	3.2 x 150	1	03AG-C411
	3	Analytical	4.0 x 100	1	03AG-D311
	3	Analytical	4.0 x 150	1	03AG-D411
	3	Analytical	4.6 x 100	1	03AG-E311
	3	Analytical	4.6 x 150	1	03AG-E411
	3	Hi-Speed	7.8 x 50	1	03AG-G211
	3	Analytical	7.8 x 100	1	03AG-G311
	5	LC/MS	2.1 x 100	1	03AG-B321
	5	LC/MS	2.1 x 150	1	03AG-B421
	5	LC/MS	3.2 x 100	1	03AG-C321
	5	LC/MS	3.2 x 150	1	03AG-C421
	5	Analytical	4.0 x 100	1	03AG-D321
	5	Analytical	4.0 x 150	1	03AG-D421
5	Analytical	4.0 x 250	1	03AG-D521	
5	Analytical	4.6 x 100	1	03AG-E321	
5	Analytical	4.6 x 125	1	03AG-EC21	
5	Analytical	4.6 x 150	1	03AG-E421	
5	Analytical	4.6 x 250	1	03AG-E521	
5	Analytical	7.8 x 100	1	03AG-G321	
5	Prep	10.0 x 150	1	03AG-H421	
5	Prep	10.0 x 250	1	03AG-H521	
5	Prep	21.2 x 150	1	03AG-I421	
5	Prep	21.2 x 250	1	03AG-I521	
10	Prep	10.0 x 150	1	03AG-H431	
10	Prep	10.0 x 250	1	03AG-H531	
10	Prep	21.2 x 150	1	03AG-I431	
10	Prep	21.2 x 250	1	03AG-I531	
10	Prep	30.0 x 150	1	03AG-J431	
10	Prep	30.0 x 250	1	03AG-J531	
10	Prep	50.0 x 150	1	03AG-K431	
10	Prep	50.0 x 250	1	03AG-K531	
SCX	5	Analytical	4.6 x 150	1	03AI-E421
	5	Analytical	4.6 x 250	1	03AI-E521
SAX	5	Analytical	4.6 x 150	1	03AH-E421
	5	Analytical	4.6 x 250	1	03AH-E521



Ordering Information						
Phase	Particle Size (µm)	Formats	I.D. Length (mm)	QTY	Part No.	
<b>VertiSep™ GES Guard Cartridge*</b>						
C18	3	Guard	2.1 x 10	2	03AA-B113	
	3	Guard	3.2 x 10	2	03AA-C113	
	3	Guard	4.0 x 10	2	03AA-D113	
	3	Guard	4.6 x 10	2	03AA-E113	
	5	Guard	2.1 x 10	2	03AA-B123	
	5	Guard	3.2 x 10	2	03AA-C123	
	5	Guard	4.0 x 10	2	03AA-D123	
	5	Guard	4.6 x 10	2	03AA-E123	
	5	Guard	10.0 x 10	2	03AA-H123	
	5	Guard	21.2 x 10	2	03AA-I123	
	10	Guard	10.0 x 10	2	03AA-H133	
	10	Guard	21.2 x 10	2	03AA-I133	
	C8	3	Guard	2.1 x 10	2	03AB-B113
		3	Guard	3.2 x 10	2	03AB-C113
3		Guard	4.0 x 10	2	03AB-D113	
3		Guard	4.6 x 10	2	03AB-E113	
5		Guard	2.1 x 10	2	03AB-B123	
5		Guard	3.2 x 10	2	03AB-C123	
5		Guard	4.0 x 10	2	03AB-D123	
5		Guard	4.6 x 10	2	03AB-E123	
5		Guard	10.0 x 10	2	03AB-H123	
5		Guard	21.2 x 10	2	03AB-I123	
10		Guard	10.0 x 10	2	03AB-H133	
10		Guard	21.2 x 10	2	03AB-I133	
Ph		3	Guard	2.1 x 10	2	03AD-B113
		3	Guard	3.2 x 10	2	03AD-C113
	3	Guard	4.0 x 10	2	03AD-D113	
	3	Guard	4.6 x 10	2	03AD-E113	
	5	Guard	2.1 x 10	2	03AD-B123	
	5	Guard	3.2 x 10	2	03AD-C123	
	5	Guard	4.0 x 10	2	03AD-D123	
	5	Guard	4.6 x 10	2	03AD-E123	
	5	Guard	10.0 x 10	2	03AD-H123	
	5	Guard	21.2 x 10	2	03AD-I123	
	10	Guard	10.0 x 10	2	03AD-H133	
	10	Guard	21.2 x 10	2	03AD-I133	
	C4	3	Guard	2.1 x 10	2	03AC-B113
		3	Guard	3.2 x 10	2	03AC-C113
3		Guard	4.0 x 10	2	03AC-D113	
3		Guard	4.6 x 10	2	03AC-E113	
5		Guard	2.1 x 10	2	03AC-B123	
5		Guard	3.2 x 10	2	03AC-C123	
5		Guard	4.0 x 10	2	03AC-D123	
5		Guard	4.6 x 10	2	03AC-E123	
5		Guard	10.0 x 10	2	03AC-H123	
5		Guard	21.2 x 10	2	03AC-I123	
10		Guard	10.0 x 10	2	03AC-H133	
10		Guard	21.2 x 10	2	03AC-I133	

Ordering Information						
Phase	Particle Size (µm)	Formats	I.D. Length (mm)	QTY	Part No.	
<b>VertiSep™ GES Guard Cartridge*</b>						
CN	3	Guard	2.1 x 10	2	03AE-B113	
	3	Guard	3.2 x 10	2	03AE-C113	
	3	Guard	4.0 x 10	2	03AE-D113	
	3	Guard	4.6 x 10	2	03AE-E113	
	5	Guard	2.1 x 10	2	03AE-B123	
	5	Guard	3.2 x 10	2	03AE-C123	
	5	Guard	4.0 x 10	2	03AE-D123	
	5	Guard	4.6 x 10	2	03AE-E123	
	5	Guard	10.0 x 10	2	03AE-H123	
	5	Guard	21.2 x 10	2	03AE-I123	
	10	Guard	10.0 x 10	2	03AE-H133	
	10	Guard	21.2 x 10	2	03AE-I133	
	NH2	3	Guard	2.1 x 10	2	03AF-B113
		3	Guard	3.2 x 10	2	03AF-C113
3		Guard	4.0 x 10	2	03AF-D113	
3		Guard	4.6 x 10	2	03AF-E113	
5		Guard	2.1 x 10	2	03AF-B123	
5		Guard	3.2 x 10	2	03AF-C123	
5		Guard	4.0 x 10	2	03AF-D123	
5		Guard	4.6 x 10	2	03AF-E123	
5		Guard	10.0 x 10	2	03AF-H123	
5		Guard	21.2 x 10	2	03AF-I123	
10		Guard	10.0 x 10	2	03AF-H133	
10		Guard	21.2 x 10	2	03AF-I133	
Si		3	Guard	2.1 x 10	2	03AG-B113
		3	Guard	3.2 x 10	2	03AG-C113
	3	Guard	4.0 x 10	2	03AG-D113	
	3	Guard	4.6 x 10	2	03AG-E113	
	5	Guard	2.1 x 10	2	03AG-B123	
	5	Guard	3.2 x 10	2	03AG-C123	
	5	Guard	4.0 x 10	2	03AG-D123	
	5	Guard	4.6 x 10	2	03AG-E123	
	5	Guard	10.0 x 10	2	03AG-H123	
	5	Guard	21.2 x 10	2	03AG-I123	
	10	Guard	10.0 x 10	2	03AG-H133	
	10	Guard	21.2 x 10	2	03AG-I133	
	SCX	5	Guard	4.6 x 10	2	03AI-B113
	SAX	5	Guard	4.6 x 10	2	03AI-C113

\*Guard holder required

Ordering Information		
Description	QTY	Part No.
<b>Guard Holder with Coupler</b>		
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

