

# Unisphere HPLC columns

*Excellent Performance-to-cost Value*

- ◆ Double End-cap, Good Inertness
- ◆ Good Stability and Reproducibility
- ◆ Excellent Performance-to-cost Value

## Technical Parameters:

High-purity silica, Metal Impurity < 10ppm

Average Particle Size : 5µm

Specific Surface: 320m<sup>2</sup>/g

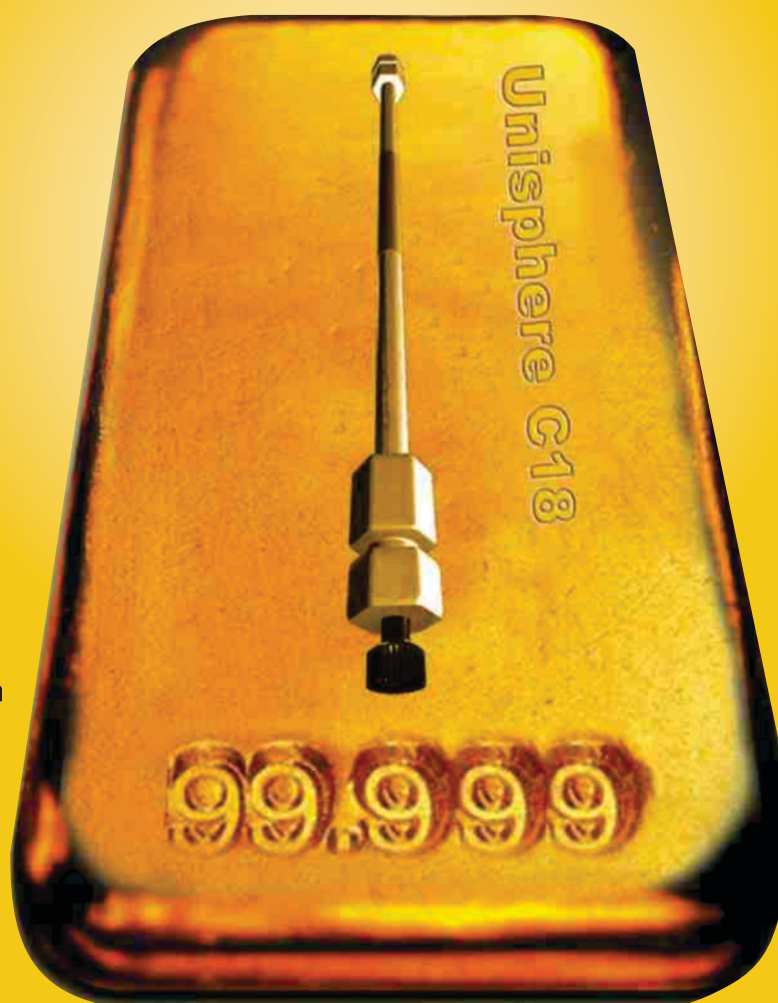
Pore Size: 100Å

Carbon Loading: 18%

pH Range: 1.5-9.0

Efficiency: >80,000/m

TF: 0.98-1.20



## Unisphere HPLC columns

Using the silica of high-purity and high mechanical strength, the Unisphere C18s are made with high-purity monosilane through Agela Technologies well controlled bonding process. They have high surface bonding coverage and completely capped. The carbon content is as much as 18%. They are stable at pH range 1.5-9.0 showing good peak shape for acidic and basic compounds. They have excellent tolerance of contamination and long life-time. They are the best choice of high performance-to-cost value.

Unisphere Extend C18 and C8



# Unisphere Extend C18 and C8

*Same Price, Higher Quality !*

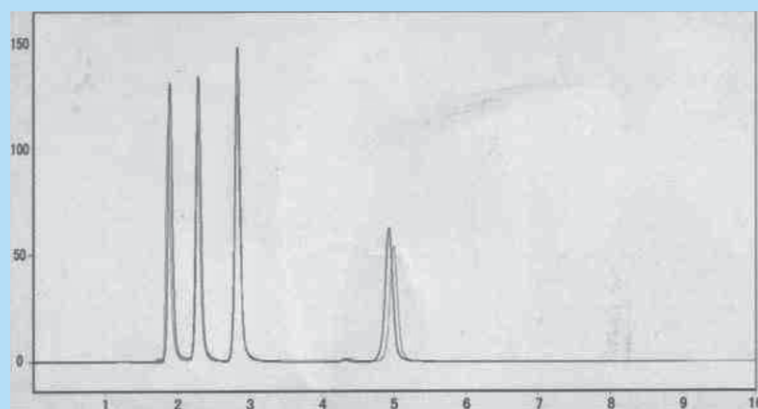
Expanding into high pH applications with columns of superior stability

The Unisphere Extend series of chromatograph columns have been newly developed by Agela Technologies, Inc. by using its proprietary Unisphere technology for applications in extended pH range. Manufactured with Agela's proprietary Unisphere technology, these columns are stable in both extremely high and low pH environments. By applying the technology of carbon-hybridization bonding on the surface of silica, attack on silica by basic (alkaline) solutions has been effectively prevented and the life of the columns has been extended. In addition, the Unisphere Extend C18 columns have very high loading capacity for basic compounds. Therefore, they are suitable for preparative of basic chemical compounds.

The characteristics of Unisphere Extend are:

1. Excellent stability in a wide range of pH, pH = 1.0 to 12.0
2. Very inert surface, which leads to a very symmetric peak shape for basic or acidic compounds
3. High loading capacity : can be used as preparative columns

## Excellent Stability at Extreme pHs



Red: Initial Chromatogram  
Black: Final Chromatogram after 600 hours experiment

Column : Unisphere Extend C18, 5µm, 4.6 x 150 mm  
 Chromatography Testing Conditions  
 Mobile phase: methanol:water=85:15  
 Flow rate : 0.8 mL/min  
 Detection wavelength: 254 nm;  
 Temperature : 30°C ;  
 Injection : 1µl  
 Sample : Uracil, Phenol, Nitrobenzene, Naphthalene  
 (according to retention time sequence)

Aging Conditions:  
 Mobile phase  
 Methanol / Triethylamine water solution (pH=12) = 40/60  
 Flow rate : 1.0 mL/min  
 Temperature: 60°C

## Unisphere AQUA

# Unisphere AQUA

A Slightly Polar, 100% Water Compatible and Universal Reversed Phase A unique and universal C18 HPLC phase made by our patented technology. This packing demonstrated unprecedented separation performance for compounds with a wide range of properties from hydrophilic to hydrophobic: polar, semi-polar and non-polar compounds.

Characteristics: Metal Impurity < 30ppm; Pore Size: 100Å;

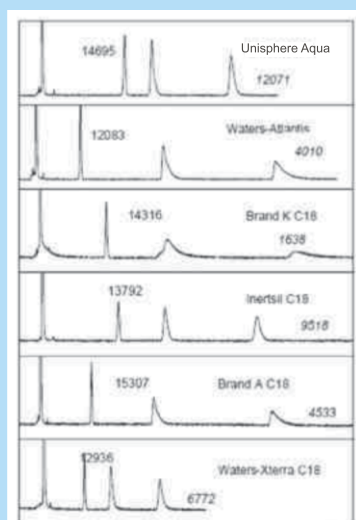
Specific Surface Area: 410m<sup>2</sup>/g;

Carbon Loading: 18%; Single end-cap;

Available Particle Size: 2.5µm, 3µm, 5µm or 10µm

Consider this column as the first option for your HPLC method development

- One of the most universal reversed phase columns
- Great inertness and efficiency for basic compound
- Enhanced retention of hydrophilic compounds
- 100% aqueous compatibility
- Robust and reproducible performance
- Wide pH range (1.5-9.0)
- Low bleed and high sensitivity for LC-MS



### Great Inertness and Efficiency for Basic Compound

Sample: uracil, toluene, doxepin and amitriptyline

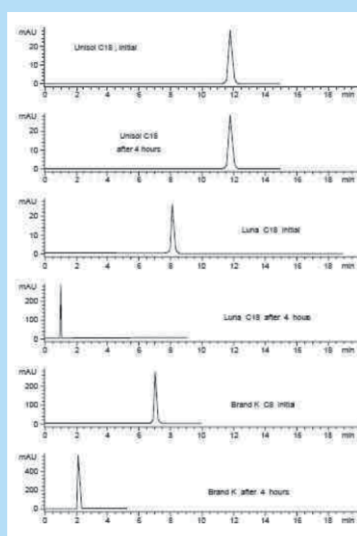
Column: 4.6x150mm, 5µm

Mobile Phase: 10mM sodium phosphate ( pH=7.0) in 60% ACN

Temperature: 30°C

Flow Rate: 1mL/min

The plate numbers in regular font are for toluene, the plate numbers in *Italic* are for amitriptyline.



### Compatibility with 100% Aqueous Mobile Phase

Sample: Uridine Column: 4.6x150mm, 5µm

Mobile Phase: 100% water

Flow Rate: 1mL/min; the flow was stopped for 5 minutes during the testing period for each column

Temperature: 30°C

## Unisphere Chiral Columns

Agela Technologies' Normal phase Chiral columns are based on modified celluloses and starches.

### Features:

1. Multi-mode: hydrogen bonding,  $\pi$ - $\pi$  and the "embedded"
2. Chiral AD-H and OD-H columns can analysis almost 80% Chiral compounds.
3. Good selectivity and high loading capacity

Type	Dimension (mm)	Particle Size (um)	Unisphere Chiral AD-H	Unisphere Chiral OD-H	Unisphere Chiral OJ-H	Unisphere Chiral Amide -1
Analytical	4.6 x 150	5	AD515059-0	OD515059-0	OJ515059-0	AM515059-0
Analytical	4.6 x 250	5	AD525059-0	OD525059-0	OJ525059-0	AM525059-0
Preparative	20 x 250	5	AD525209-0	OD525209-0	OJ525209-0	AM525209-0
Preparative	30 x 250	5	AD525309-0	OD525309-0	OJ525309-0	AM525309-0

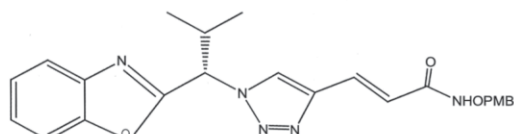
\* Chiral Amide-1 can be used as reverse phase and normal phase

### Unisphere Chiral AD-H : Coat with Amylose - (3,5 - dimethylphenyl carbamate)

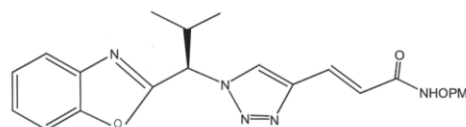
#### Application:

Amide, Aromatic, carbonyl-group, nitro-group, sulfonyl-group, cyano-group, hydroxide radical, amine and carboxylic acid compounds

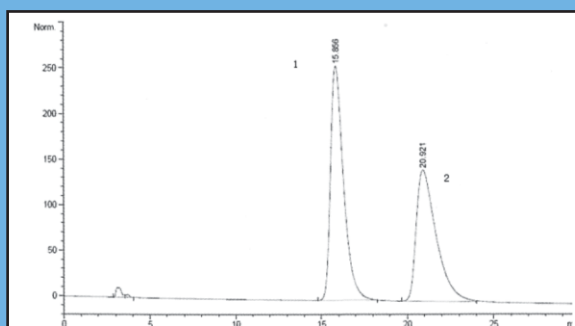
#### Example:



L-val PMB



D-val PMB



1: L-val PMB 2: D-val PM

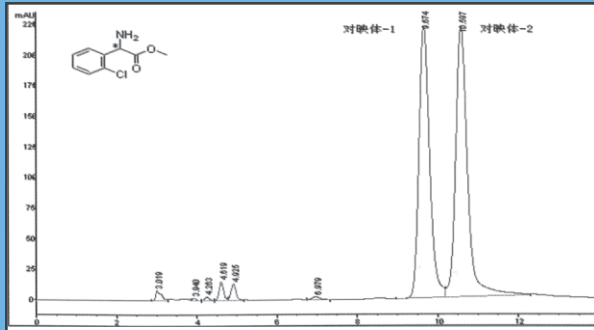
Column : Unisphere Chiral AD-H 4.6\*250mm, 5 um, 1000A  
 Mobile phase : Hexane : Isopropanol = 80:20  
 Detection : 254 nm  
 Flow rate : 1.0mL/min  
 Temperature: 25 °C

### Unisphere Chiral OD-H : Coat with Cellulose - (3,5 - dimethylphenyl carbamate)

#### Application:

A phase suitable for the separation of  $\beta$ -blocker class and steroids, such as DHA, chlorine heart acyl amines, flavanones, metoprolol, etc

### Example:



1: L-val PMB 2: D-val PM

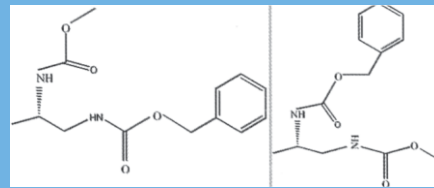
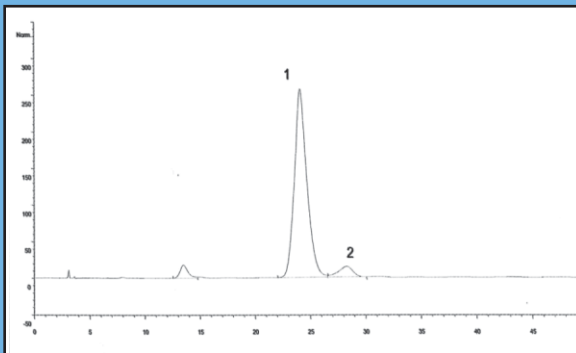
Column : Unisphere Chiral OD-H 4.6\*250mm, 5 um, 1000A  
 Mobile phase : Hexane : Isopropanol = 98:2  
 Detection : 220 nm  
 Flow rate : 1.0mL/min  
 Temperature: 25 °C

### Unisphere Chiral OJ-H : Coat with Cellulose - [4 - methyl benzoate]

#### Application:

The Unisphere Chiral OJ-H column is used for the separation of carbonyl, amido, aryl, nitro, cyano, sulfonyl, hydroxyl, amine and carboxylic acid compounds.

### Example:



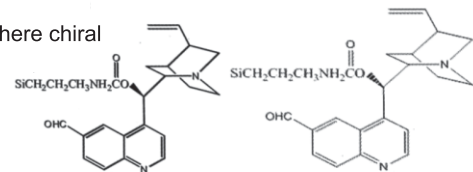
Column : Unisphere Chiral OJ-H 4.6\*250mm, 5 um, 1000A  
 Mobile phase : Hexane : Isopropanol = 93:7  
 Detection : 210 nm  
 Flow rate : 1.0mL/min  
 Temperature: 30 °C

### Unisphere Chiral Amide - 1 : bond with Amide

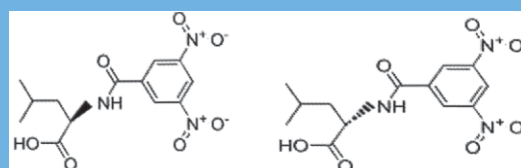
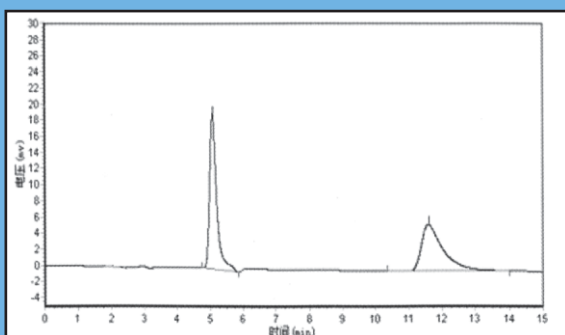
Unisphere Chiral Amide-1 is packed with 5um 300A Silica bonding with a unisphere chiral molecule whose structure is demonstrated as below :

Consider this column as the first option to separate amide chiral compounds:

1. Can be used as reverse phase and normal phase
2. Unique selectivity and high separation
3. More stable and longer column lifetime



### Example:



Column : Unisphere Chiral Amide-1,5 um, 300A, 4.6\*150mm,  
 Mobile phase : Methonal/10mM KH<sub>2</sub>PO<sub>4</sub> (pH=6.86)+0.5mM  
 Tetrabutyl ammonium hydroxide=30/70  
 Detection : Uv254nm; Injection : 5µL  
 Flow rate : 1.0mL/min