



Bonna-Agela

Purification Cartridge & Instrument



Official Website

Best Value
Guaranteed Product Quality
Innovation to Benefit Customers



**Sample
Preparation**

**Better
Solutions for
Chromatography**

**Chemical
Analysis**

**C
Pu**



Bonna-Agela Technologies — A Global Supplier for Chromatography Solutions



Chemical
Purification

As Bonna-Agela is poised to enter its new development stage with confidence and pride in its innovative separation, purification, and sample preparation products, we would like to thank our many loyal customers for your continuous support and trust. With your support and our effort in delivering the highest quality products to you, our company has grown remarkably. This has allowed us to expand our research and development effort, and thus introduce more innovative products to better service your application needs.

We had tremendous accomplishments: We cataloged over one thousand different products. Our manufacturing and R&D operation were certified in compliance with ISO 9001 and passed many quality audits by customers and distributors, including VWR International. As a global wide company, this will allow us to reach higher goals and to provide our customers with even better quality products and faster service in the new year.

Our mission statement and commitment:

- Provide products with our innovative technologies at the best performance to cost ratio.
- Deliver products with guaranteed quality.
- Provide global support with quick responses.

How to Place Orders

Our office is open from 9:00 am to 6:00 pm Eastern Standard Time, Monday through Friday.

To place an order or receive a quote, you may choose from the following contacts:

Bonna-Agela Technologies US

2038A Telegraph Rd.
Wilmington, DE 19808, USA
Tel: (302) 438 8798
Fax: (302) 636 9339
Website: <http://www.bonnaagela.com>
E-mail: info@bonnaagela.com

Bonna-Agela India

G-212, Second Floor , Sector-63 , Noida-201301 (U.P) , India
Phone : 91-120-4225466-71
Fax : 91-120-4225465

Bonna-Agela China

179 South Street, Teda West Zone, Tianjin 300462, China
Tel: +86(22)25321032/7023
Fax: +86(22)25321033

Please include the following information with your order or request: Account number (if you have one), purchase order number, contact name, organization name, shipping and billing address, telephone number, fax number or email address, product number, brief description and quantity, method of payment and preferred method of delivery. A written confirmation will be sent to you by email or fax. We accept business checks, wire transfers and major credit cards as methods of payment.

Checks:

Please make checks payable to:
Bonna-Agela Technologies Inc. and send to:
Bonna-Agela Technologies Inc.
2038A Telegraph Road, Wilmington, DE 19808, USA

Wire Transfer:

Please contact us by phone, fax or email for account information.

Credit Cards: (USA Only)

Please include card type and number, expiration date, and card holder name. Due to security concerns, please do not email the information. Please call or send a fax to provide your credit card information.

Terms and Conditions

PLEASE READ THESE TERMS BEFORE ORDERING. IF YOU HAVE ANY QUESTIONS, PLEASE DO NOT HESITATE TO CONTACT US AND OUR STAFF WILL BE GLAD TO ASSIST YOU.

Acceptance and Availability

All orders placed are subject to the agreement of Bonna-Agela Technologies Inc. The catalogue does not constitute an engagement of the company to sell all listed products. You are guaranteed to be notified at the time of ordering if the ordered items are in back-order or discontinued.

Price and Payment

The prices are in effect at the time of printing. Bonna-Agela Technologies reserves the right to change the prices without notice, though we do our best to provide our customers with advance notice. The prices quoted at the time of ordering will be guaranteed. The general payment term is net 30 days, F.O.B., Newark, Delaware, USA. However we reserve the right to ask for prepayment if customers' account information is not satisfactory. A 1.5% per month service charge will be added to delinquent accounts. If a purchase order is less than \$1000.00, a \$50.00 extra charge will be added to the invoice.

Changes

Bonna-Agela Technologies reserves the right to change product specifications, quantities, designs or prices without prior notice and without liability for such changes.

Shipping Policy

The standard shipping method is 2-day FedEx within the United States and Canada. We will try to accommodate requests for other shipping methods if they are available. All shipping and handling charges will be billed separately. Should you receive damaged goods, it is imperative that you notify us immediately and save all packing materials for inspection by the carrier.

Application

All products in this catalog should be used for laboratory or manufacturing use only. They are not intended for direct medicinal or food use. Bonna-Agela Technologies assumes no liability for any misuse of the products.

Returns

Bonna-Agela Technologies tries to accommodate all requests for returns of unused goods. However, return of some items may be restricted by the original manufacturers. Please contact us for return authorization before returning any items. A restocking charge may apply to certain products.

Warranty

All Bonna-Agela Technologies products are warranted to be free of defects in materials and workmanship. They are not warranted for any other particular purpose. Bonna-Agela Technologies shall not under any circumstance be liable for any incidental, consequential or compensatory damage in conjunction with its products. The maximum liability shall not exceed the invoice price of the product.



CONTENTS

Purification Products

| | |
|--|------------|
| Introduction | 001 |
| Bonna-Agela Preparative HPLC Bulk Media and Columns | 005 |
| Unisol C18(2) | 005 |
| Innoval Series | 007 |
| Venusil® Series | 010 |
| Venusil® ASB C18 | 010 |
| Venusil® HILIC | 012 |
| Durashell C18(L) | 014 |
| Columns Ordering Information | 016 |
| Bulk Media Ordering Information | 019 |
| Claricep™ Flash Chromatography Media and Columns | 020 |
| Claricep™ Irregular Flash Columns | 020 |
| Claricep™ CS Silica Columns | 020 |
| Claricep™ CM Silica Columns | 023 |
| Claricep™ HILIC Columns | 024 |
| Claricep™ Reversed-phase Columns | 026 |
| Claricep™ Spherical Flash Columns | 027 |
| Claricep™ Spherical Silica Columns | 027 |
| Claricep™ Spherical C18 Columns | 028 |
| Claricep™ Spherical AQ C18 Columns | 030 |
| Claricep™ Spherical HLP Columns | 032 |
| Claricep™ Screw-on Flash Columns | 033 |
| Claricep™ i-Series | 033 |
| Claricep™ s-Series | 033 |
| Claricep™ c-Series | 033 |
| Claricep™ Column Ordering Information | 034 |
| Claricep™ Bulk Media Ordering Information | 042 |
| Cross-reference for Columns | 045 |

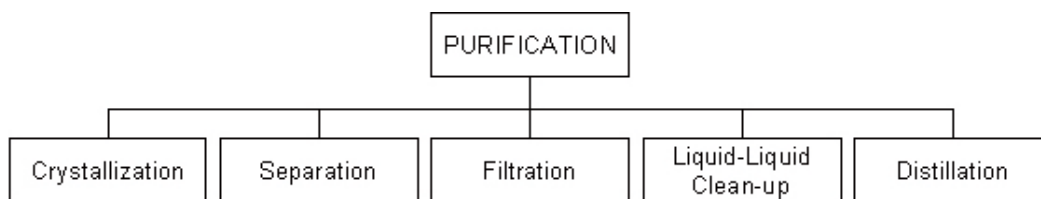


| | |
|--|------------|
| Other Purification Products | 046 |
| Glass Columns | 046 |
| Thin Layer Chromatography (TLC) | 047 |
| Quick Work-up Cartridges | 048 |
| Purification System | 049 |
| CHEETAH [®] MP Series Purification Systems | 049 |
| CHEETAH [®] HP Series Prep HPLC | 052 |
| CHEETAH [®] Software | 054 |
| FLEXA [™] MP Series Modular Purification Components | 056 |
| FLEXA [™] Series Pump | 056 |
| FLEXA [™] Series Detectors | 057 |
| FLEXA [™] Series Fraction Collector | 058 |
| ATS Series Auto-sampler | 059 |
| FLEXA [™] Series Fraction Collector | 060 |
| Column Oven | 061 |
| LS-Prep Large Volume Purification System | 062 |
| LS-Prep Series Pump | 063 |
| LS-Prep Series Fraction Collector | 063 |
| LC-10F High Performance Liquid Chromatography | 064 |
| Accessories for Flash Purification Products | 065 |
| Fritted Empty Cartridges for Solid Sample Loading | 065 |
| Flash Frit | 065 |
| Column Packing Tools | 066 |
| Wrench for Screw on Columns | 066 |
| Cleanert [®] Phase Separation Cartridge | 067 |
| Drying Cartridges for Quick Work-up | 067 |
| Pre-packed Solid Load Cartridges for Other System Vendors | 068 |
| Other Format Columns for Solid Sample Loading | 068 |
| Applications | 069 |
| EPB1002 The Extraction of a Polypeptide | 069 |
| EPP1002 Separation of an Active Lignin Ingredient | 070 |
| EPB1003 Purification of a Small Bioactive Compound | 071 |
| EPP1004 The Separation of Naturally Occurring Phenol | 073 |
| EPP1005 The enrichment and purification of a oxime impurity | 074 |
| EPB1004 The Derivatives of a DNA Fragment | 075 |
| EPP1006 Clomazone | 076 |



Introduction

Purification of compounds has become crucial and a bottleneck due to the ever-increasing molecular diversity and large number of compounds required in drug discovery. In organic synthesis, distillation, re-crystallization, and extraction are all important techniques for the purification of the compounds.



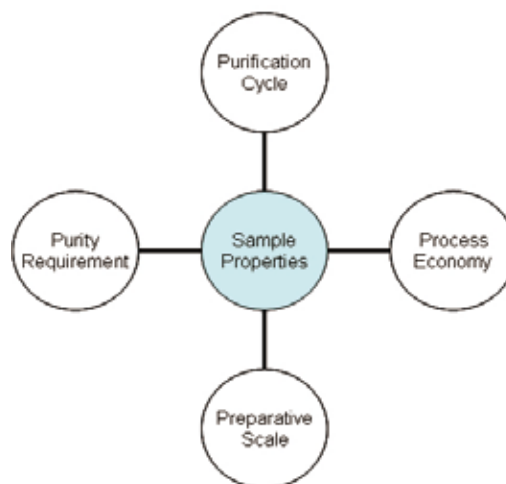
Types of purification techniques

However, these techniques are not sufficient to separate the target compound from the complex matrices and closely related impurities. This is very true in case of purifying natural products. Chromatographic methods are often required to obtain high purity compounds.

Sample Properties

The properties of sample under separation play a key role to the quality and economy in a purification process. Better understanding of sample properties makes chromatographer's strategy one step ahead in practicing better preparative LC. Sample properties with particular concern in prep LC include the following:

- Solubility
- Concentration of the target component
- Chemical stability
- Matrix complexity
- Sample values



Key factors in a purification process



To gain maximum quantity of the target component within acceptable purity requirement is the goal of purification. Sample property is a determining factor in considering a strategic plan of purification with respect to other factors such as preparative scale, purity requirement, purification cycle and process economy.

Among these properties, sample solubility is a concern when selecting solvent that will be used in the elution system since it will directly affect the capacity of sample loading and purification throughput. Improper selection of solvents for mobile phase may result in sample precipitation or co-elution in the elution process. On the other hand, low concentration sample as a result of too much dilution will cause volume overloading and the loss of sample resolution from adjacent impurities.

Preparative HPLC

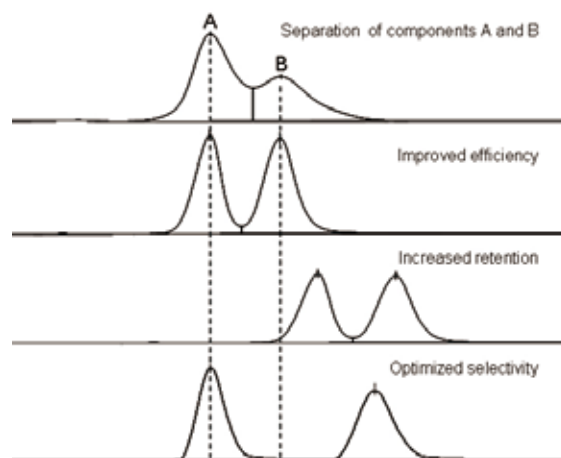
When practicing preparative LC, some fundamental factors need to be taken into consideration. Take the separation of two-component mixture, A and B, for example to illustrate the process.

Resolution (Rs)

The separation of components A and B is described with the following chromatograms. The degree of the separation is defined as Resolution (Rs):

$$R_s = \left(\frac{\sqrt{N}}{4}\right) \cdot \left(\frac{a-1}{a}\right) \cdot \left(\frac{k}{k+1}\right)$$

Given a purification system, the length of the retention of a substance, factor k , is affected by the eluting speed of the mobile phase. Sample will be more retarded when it is eluted at a slower speed, but the resolution of components A and B will not be improved. Employing column packed with the same media of smaller particle size will definitely make the separation more efficient, narrower peaks A and B, because of the enhanced column efficiency as the plate count (N) gets higher. Using packing of smaller particle size may become necessary when the system selectivity (α) is maximized.



Optimizing the separation of components A and B

Selectivity (α)

Maximum resolution of compounds A and B is always desired in LC purification in order to obtain higher sample loading and throughput. The key to increase resolution is to increase selectivity. Selectivity α describes the magnitude of the difference between the relative thermodynamic affinities of analytes A and B to the specified mobile and stationary phase of the purification system. It equals the ratio of compound B's retention factor over compound A's. When $k_2/k_1 = 1$, it is co-elution, and no separation is made. The magnitude of selectivity (α) can be used to gauge the degree of difficulty of a separation.

Selectivity and the degree of purification difficulty:

If $\alpha \geq 2$, easy separation

If $\alpha \geq 1.5$, do-able but may require efficient packing material

If $\alpha \geq 1.3$, difficult, efficient packing is required

If $\alpha \leq 1.3$, very difficult, requires further optimization of selectivity and method

Selecting an appropriate combination of chemistry of packing media and mobile-phase composition for a purification system is the most effective procedure to maximize resolution. Factors of the choice include changing the mode of chromatography, and alteration of mobile-phase composition and modifiers among a range of solvents. As α is improved, the separation between the peak of interest and the nearest impurity becomes more apart, resulting in higher sample loads with no compromise in product purity. When α is low, small increases in α value will enhance purification speed and throughput significantly. Selecting correct mode of chromatography or switching to a different mode of chromatography plays a key role to optimize a purification process.

Purification Scale Up

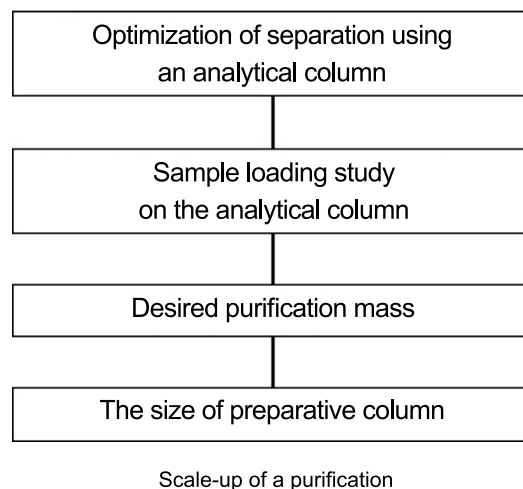
The optimization of a separation always starts from a small scale, and then the separation is scaled up to a large column. The process of purification using prep HPLC is described with the following chart.

In prep-HPLC, optimization of separation is first achieved with an analytical column. When the optimization is finalized, a loading study on the analytical column is followed to determine the capacity of a particular packing media.

When using identical packing material, the degree of the large scale separation should be the same as the small scale separation when the linear velocity of elution is kept the same. Thus the scale-up factor for sample loading can be derived for the prep system from the sample loading study of the analytical system. Certainly, the maximum sample load depends upon the complexity of the sample.

When the loading mass is established, the scale up factor is calculated using the following formula:

$$\text{Scaleup Factor} = \left(\frac{\text{Diameter (Prep)}}{\text{Diameter (Analytical)}} \right)^2 \cdot \left(\frac{\text{Length (Prep)}}{\text{Length (Analytical)}} \right)$$





Multiply the loading capacity of the analytical column with the scale-up factor is the predicted loading mass for the preparative column. Bear in mind that other factors may impact the mass of loading too. Here is a list of factors that also need to be considered:

- Surface chemistry of stationary phase affects loading capacity.
- Strongly retained target component has higher mass loading.
- Simple sample mixture has higher loading capacity.
- pH of mobile phase affects loading capacity of basic or acidic compounds.
- Loading capacity compromises when higher resolution is required.
- Volume overloading reduces resolution and purity.
- Beware the choice of the solvent used to dissolve sample. Strong dissolving solvents will disrupt elution process and degrade resolution.
- Sample solubility affects loading capacity.

Example of scale-up calculation:

When scaling up from an Bonna-Agela XBP C18 4.6x150 mm column to a XBP C18 50x250 mm column, the scale up factor is calculated as following:

$$\text{Scaleup Factor} = \left(\frac{50}{4.6}\right)^2 \bullet \left(\frac{250}{150}\right) = 197$$

If the loading study finds the mass capacity for the analytical column is 10 mg, then the predicted mass loading for the large column is: $10 \times 197 = 1970$ mg. The linear velocity should be kept the same as that of the analytical column as mentioned earlier when using the preparative column. Thus the flow rate for the prep column is magnified from the analytical elution speed:

$$\text{PrepFlowRate} = \text{AnalyticalFlowRate} \bullet \left(\frac{\text{Diameter(Prep)}}{\text{Diameter(Analytical)}}\right)^2$$

However, some considerations are needed for the system hardware since high flow rate will generate considerable system backpressure as the increase of the column length with the use of small-particle-size packing material.

Linear gradient elution is a commonplace in prep chromatography. When scaling up from an analytical column to a preparative column, the duration of gradient needs to be adjusted accordingly with the following calculation if different lengths are used:

$$\text{Prep Gradient Duration} = \text{AnalyticalGradientDuration} \bullet \frac{\text{Length(Prep)}}{\text{Length (Analytical)}}$$

Bonna-Agela Preparative HPLC Bulk Media and Columns

Bonna-Agela Technologies have a full line of preparative HPLC columns to meet a variety of application needs for customers.

The preparative columns have the following features:

1. Great scalability
2. Excellent bed stability
3. High loading capacity
4. Broad solvent compatibility, from 100 % aqueous to 100 % organic solvents (Unisol C18(2), Venusil® HILIC and Venusil® ASB C18)
5. Broad pH range, 1.5-12.0 (Durashell)
6. Unique selectivity (Venusil® HILIC and Venusil® ASB C18)



Unisol C18(2)

Unisol C18 (2) column is an universal reversed phase column with optimized pore size, surface, carbon content, innovative surface modification and unique bonding processes. It has excellent balance of resolution and contamination tolerance. At the same time, the Unisol C18 (2) column demonstrates good retention capability for the polar and non polar compounds. Because it is less affected by the pH of mobile phase and buffer concentration, the Unisol C18 (2) column provides excellent reproducibility.

Characteristics

| Phase | Particle size | Pore size | Carbon loading | Surface Area | End-capped style | pH range |
|-------|---------------|-----------|----------------|-----------------------|------------------|----------|
| C18 | 5,10 µm | 110 Å | 14 % | 340 m ² /g | Double | 1.5-9.0 |

Optimum proper pH range is recommended for long lifetime and better effect:pH 2.0-6.0

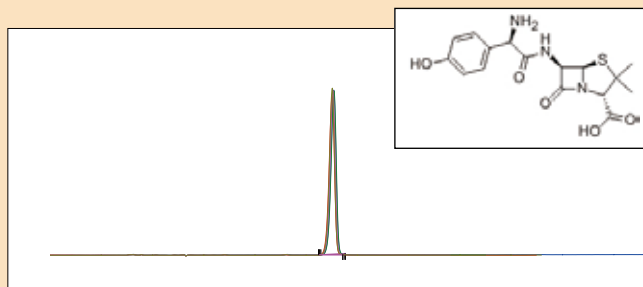


Main Features

- 100 % water compatible and enhanced retention, separation for polar isomer compounds.
- Reduced the quantity of active silicon hydroxyl and blocked metal ions, and show good peaks for basic compounds.
- Reduced the quantity of ion exchange sites and make the methods been less affected by the mobile phase pH and buffer concentration.
- Weakened nonspecific adsorption provide it a good tolerance of biological matrix.

Amoxicillin

Unisol C18(2), 5 μ m, 4.6 \times 250 mm, 110 Å,
Mobile Phase:Acetonitrile:0.05 M monopotassium phosphate
= 2.5:97.5(KOH pH=5.0)
Flow Rate: 1.0 mL/min
Temperature: 30°C
Injection: 20 μ L
Detector: UV 254 nm



Innoval Series

Innoval series are a cost-effective product providing high loadability and stability. 5µm and 7µm particles are provided for high efficiency separation, especially the new 7µm series keep balance of loadability and resolution, which is the best choice for preparation method development.

Characteristics

| Phase | Particle size | Pore size | Carbon loading | Surface Area | End-capped style | pH range |
|-------------|---------------|-----------|----------------|-----------------------|------------------|----------|
| C18 (ODS-2) | 5,7,10 µm | 100 Å | 14 % | 220 m ² /g | Double | 1.5-9.0 |
| C8 | 5,10 µm | 100 Å | 8 % | 220 m ² /g | Single | 1.5-8.5 |
| Silica | 5,10 µm | 100 Å | / | 220 m ² /g | / | 1.0-7.0 |

Optimum pH range is recommended for long lifetime and better effect: (1) Innoval ODS-2,C8:pH 2.0-6.0; Innoval Silica:pH 2.0-5.0

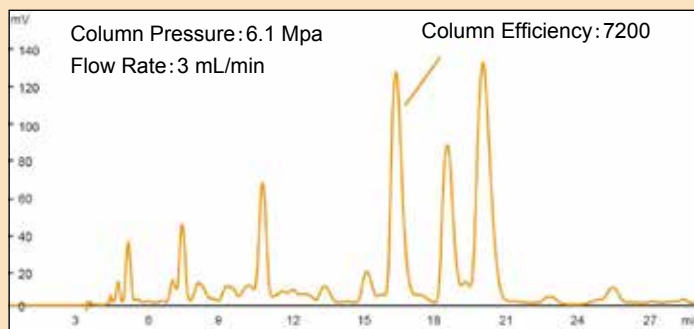
Higher Column Efficiency and Resolution

The 7 µm prep column of Innoval ODS-2 has the better selectivity, the higher column efficiency and resolution in comparison with 10 µm one.

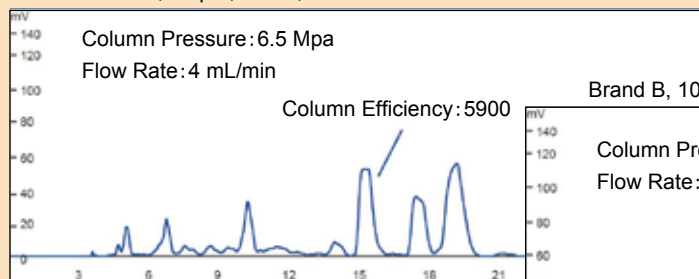
Sample: 5-hydroxytryptamine
Column: Innoval ODS-2, 7 µm, 100 Å, 10×250 mm
Mobile Phase: A: Water (0.05%TFA) B: ACN
Flow Rate: 3.0 mL/min
Temperature: 35°C
Detector: UV 277 nm

| Time/min | B% |
|----------|----|
| 0 | 5 |
| 25 | 10 |

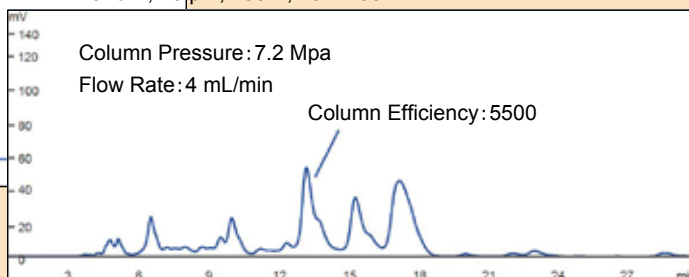
Innoval ODS-2, 7 µm, 100 Å, 10 × 250 mm



Brand A, 10 µm, 100 Å, 10 × 250 mm



Brand B, 10 µm, 100 Å, 10 × 250 mm



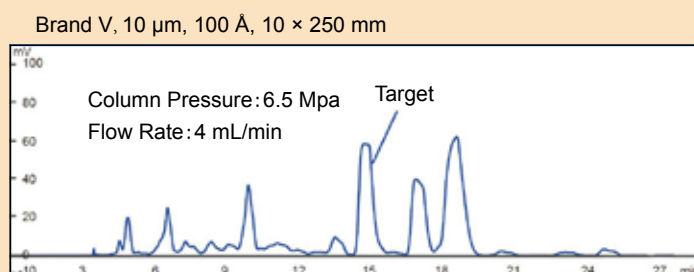
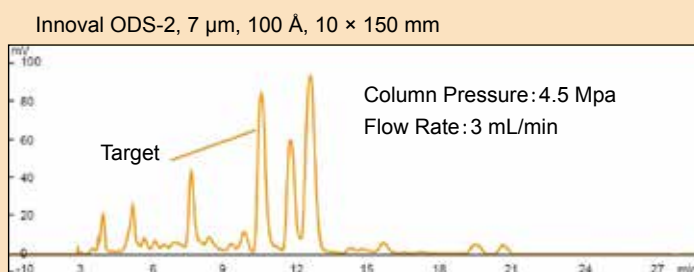


The Best Cost-effective Choice for Preparation

Base on low porosity silica basement, even at a lower flow rate, the 7 μm prep column shows satisfied resolution. Compare to 10 μm 10 \times 250 mm one, 7 μm 10 \times 150 mm semi-prep column provide similar resolution and significantly reduce the solvent usage volume and also shorten the separation time from 21mins to 14mins.

Sample: 5-hydroxytryptamine
 Instrument: Bonna-Agela LC-10F
 Column: Innoval ODS-2, 7 μm , 100 \AA , 10 \times 250 mm
 Mobile Phase: A: Water (0.05%TFA) B: ACN
 Flow Rate: 3.0 mL/min
 Temperature: 35 $^{\circ}\text{C}$
 Detector: UV 277 nm

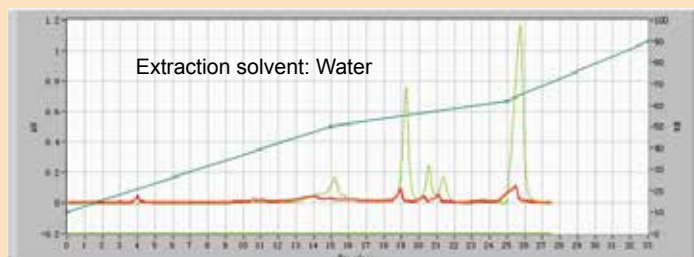
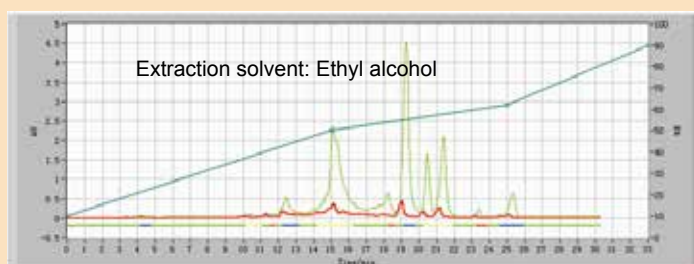
| Time/min | B% |
|----------|----|
| 0 | 5 |
| 25 | 10 |



Radix Ophiopogonis Extracts

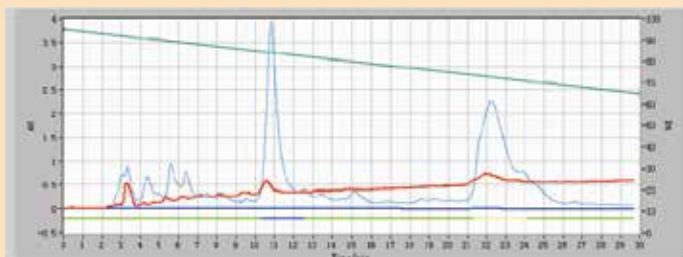
Sample: Radix ophiopogonis extracts
 Column: Innoval ODS-2, 7 μm , 100 \AA , 30 \times 250 mm
 Mobile Phase: A: Water; B: ACN
 Flow Rate: 36 mL/min
 Detector: UV 210 nm
 ELSD 80 $^{\circ}\text{C}$ (Blue signal)

| Time/min | B% |
|----------|----|
| 0 | 10 |
| 15 | 50 |
| 25 | 62 |
| 33 | 90 |



Small Molecule Chemical Medicine

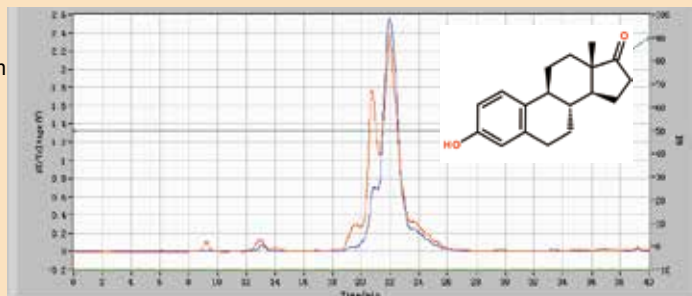
Instrument: Bonna-Agela CHEETAH® HP 100
Column: Innoval ODS-2, 7 µm, 100 Å, 30×250 mm
Mobile Phase: A: MeOH (0.05%TFA)
 B: Dichloromethane (0.05%TFA)
Flow Rate: 35 mL/min
Detector: UV 200 nm (Red line)
 ELSD 65°C (Blue line)
Split Ratio: 34.5:0.5



| Time/min | B% |
|----------|----|
| 0 | 5 |
| 30 | 35 |

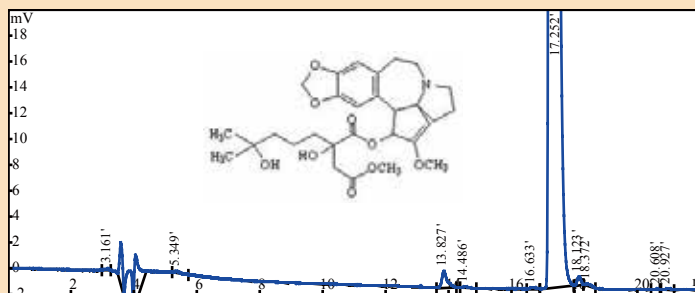
Estrone

Instrument: CHEETAH® HP 100
 Column: Venusil® ASB C18, 5 µm, 150 Å, 21.2×250 mm
 VS952520-0
 Mobile Phase: Water : ACN=50 : 50
 Detector: UV 210 nm, 254 nm
 Flow Rate: 16 mL/min
 Sample Loading Volumn:10 mg



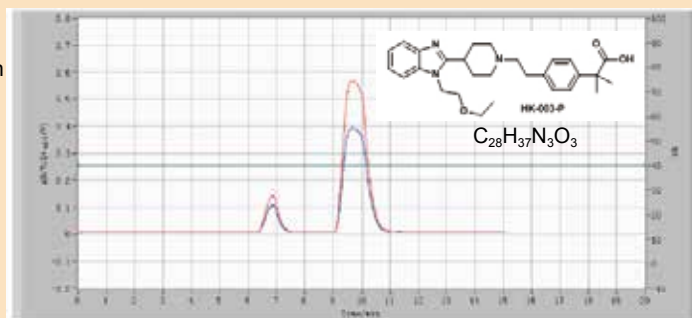
Homoharringtonine

Instrument: FLEXA™ Series
 Column: Venusil® ASB C18, 5 µm, 150 Å, 10×250 mm
 VS952510-0
 Mobile Phase: 80% A to 50% A in 20 mins
 A: 0.01M ammonium acetate
 solution (pH2.5)
 B: Methanol
 Detector: UV 288 nm
 Flow Rate: 4 mL/min
 Sample Loading Volumn: 5 mg



Benzimidazole

Instrument: CHEETAH® HP 100
 Column: Venusil® ASB C18, 5 µm, 150 Å, 21.2×250 mm
 VS952520-0
 Mobile Phase: Formic Acid in water (pH 2.45) :
 Methanol=60:40
 Detector: UV 275 nm
 Flow Rate: 15 mL/min
 Sample Loading Volumn: 50 mg





Venusil[®] HILIC

Hydrophilic Interaction Chromatography (HILIC) has been increasingly used for strong hydrophilic substance in drug development to replace the traditional ion-pair methods. Existing stationary phases include silica, aminopropyl, ion-exchange. Issues include surface activity, performance reproducibility and mechanism complexity.

Venusil[®] HILIC with strongly hydrophilic, hydrogen bonding is more stable and reproducible than NH₂ columns or silica columns. It show better retention and separation for highly water soluble compounds, also reduce the usage of buffer solution with high concentration of salt.

Characteristics

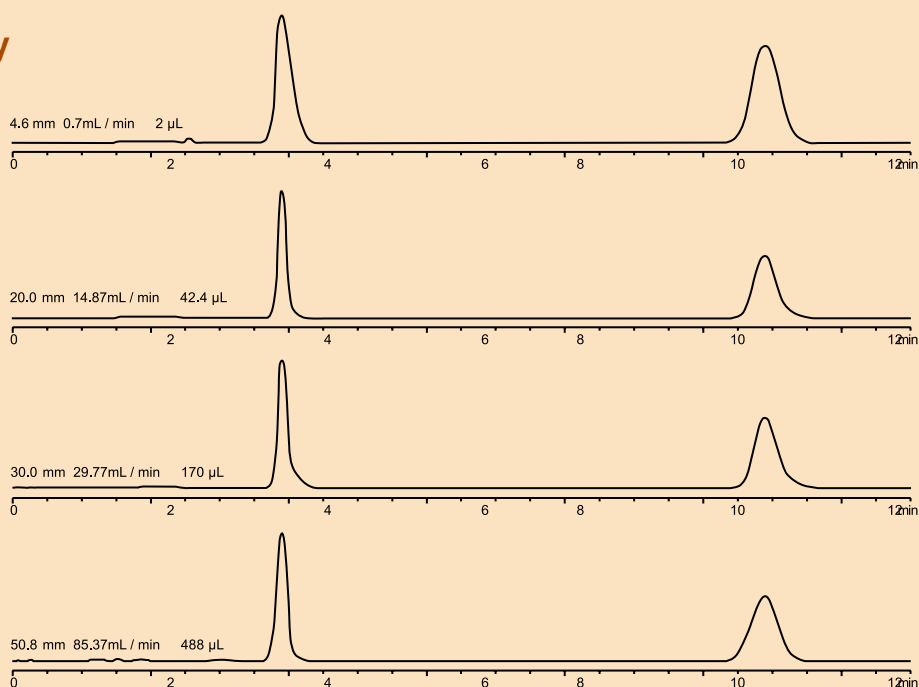
| Phase | Particle size | Pore size | Carbon loading | Surface Area | End-capped style | pH range |
|-------|---------------|-----------|----------------|-----------------------|------------------|----------|
| HILIC | 5,10 μm | 100 Å | 8 % | 380 m ² /g | None | 2.0-8.0 |

Optimum pH range is recommended for long lifetime and better effect: pH 2.0-6.0

Performance Features

1. 100 % aqueous and 100 % organic solvents compatibility.
2. Strong retention of polar compounds in HILIC mode.
3. Very unique selectivity and highly complementary to conventional reversed phase.
4. Can be used as reversed phase, normal phase or HILIC phase.

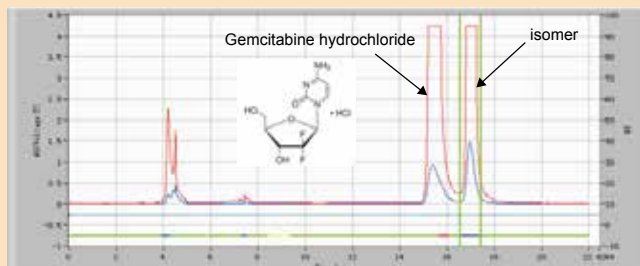
Scalability



Column: Venusil[®] HILIC, 4.6×250 mm, 5 μm
Mobile Phase: ACN/Water = 85/15 to 40/60 in 30 min
Detector: UV 210 nm

Gemcitabine Hydrochloride

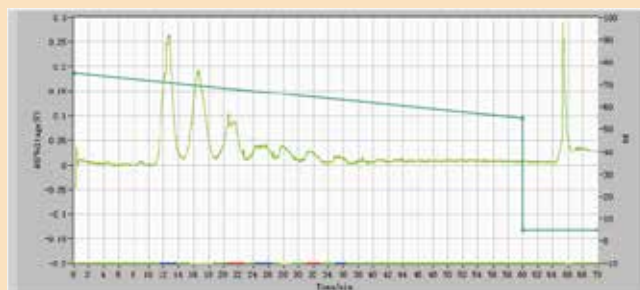
Instrument: CHEETAH® HP 100
 Column: Venusil® HILIC, 10 µm, 100 Å, 21.2×250 mm
 VH902520-0
 Mobile Phase: Dichloromethane:methanol = 95: 5
 Detector: UV 230 nm
 Flow Rate: 15 mL/min
 Sample Loading Volumn: 30 mg



Collection from 15.2-16.0 min is Gemcitabine hydrochloride, and 16.6-17.4 min is the isomer

Isomaltooligosaccharide

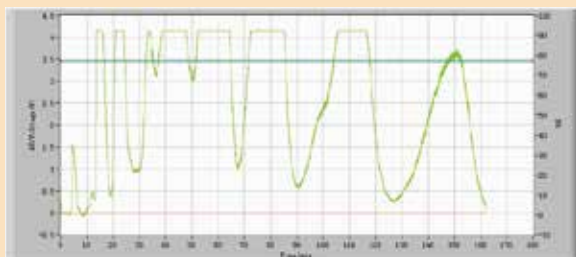
Instrument: CHEETAH® HP 100
 Column: Venusil® HILIC, 10 µm, 100 Å, 21.2×250 mm
 VH902520-0
 Mobile Phase: 25% A increase to 45% in 60 mins,
 A: Water, B: ACN
 Detector: ELSD
 Flow Rate: 18 mL/min
 Sample Loading Volumn: 40 mg



Collect target compounds at 12.8 min, 16.5 min and 21min

Fructo Oligosaccharide

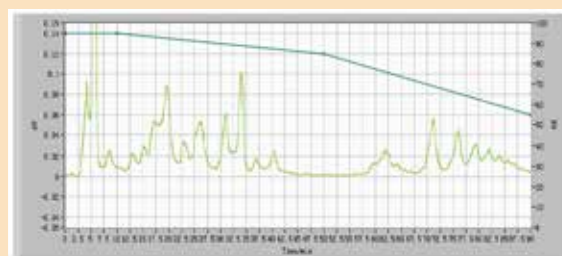
Instrument: CHEETAH® HP 100
 Column: Venusil® HILIC, 10 µm, 100 Å,
 50mm DAC column
 Mobile Phase: 23% Water:77%ACN
 Detector: ELSD 70°C
 Flow Rate: 80 mL/min
 Sample Loading Volumn: 3 g



Collect target compounds at 12.8 min, 16.5 min and 21min

Xylooligosaccharide

Instrument: CHEETAH® HP 100
 Column: Venusil® HILIC, 10 µm, 100 Å, 21.2×250 mm
 VH902520-0
 Mobile Phase: 5% A keep 10 mins and then increase to
 15% in 40 mins, and then increase to 45% in 40 mins, A:
 0.05% TFA in water, B: ACN
 Detector: ELSD 65°C
 Flow Rate: 18 mL/min
 Sample Loading Volumn: 40 mg





Durashell C18(L)

Bonna-Agela's Durashell series with Agela core-technology of hybrid surface technology, enable the columns show stability in high pH applications. The patented technology produces a strong hydrophobic protection layer over the silica surface, allowing the columns to be used at extremely high and low pH. It also reduces excessive hydrophobic interactions between the stationary phase and the analytes, and yet maintains great interfacial kinetics for high efficiency.

Durashell C18(L) with a 150 Å pore size show better life-time and tolerance of biological sample matrix. By the same time, it has high efficiency comparable with traditional silica based product. It is a good choice for high pH separation and purification method.

Characteristics

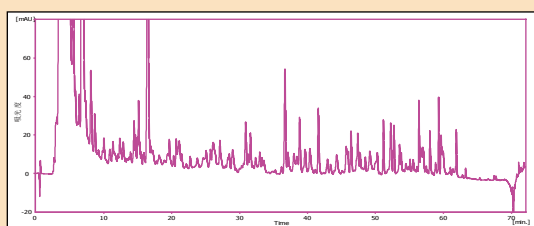
| Phase | Particle size | Pore size | Carbon loading | Surface area | End-capped style | pH range |
|--------|---------------|-----------|----------------|-----------------------|------------------|----------|
| C18(L) | 5,10 µm | 150 Å | 14 % | 200 m ² /g | Double | 1.5-12.0 |

Optimum pH range is recommended for long lifetime and better effect: pH 2.0-10.0

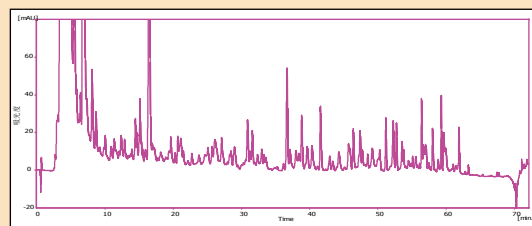
High pH Stability

Sample: BSA peptide fragment
 Column: Durashell C18(L), 4.6×250 mm, 5 µm, 150 Å
 Mobile Phase: A: 2% ACN (pH=10.0) B: 98% ACN (pH=10.0)
 Flow Rate: 0.7 mL/min
 Temperature: 45°C

| Time/min | A% | B% |
|----------|-----|-----|
| 0 | 95% | 5% |
| 5 | 92% | 8% |
| 40 | 82% | 18% |
| 62 | 68% | 32% |
| 64 | 5% | 95% |
| 68 | 5% | 95% |
| 72 | 95% | 5% |



First injection



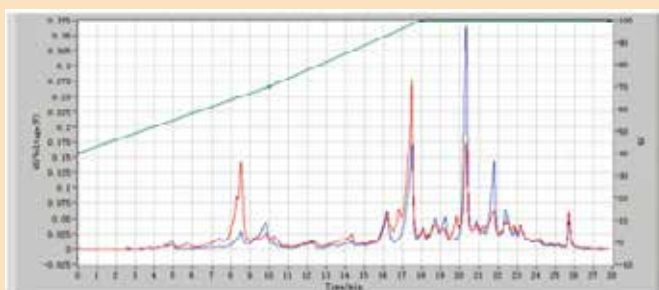
One thousandth injection

The separation and preparation of natural products

Durashell C18(L), 10×250 mm, 5 µm, 150 Å
 Mobile Phase: A: Water B: ACN

| Time/min | B% |
|----------|-----|
| 0 | 40 |
| 10 | 70 |
| 18 | 100 |
| 28 | 100 |

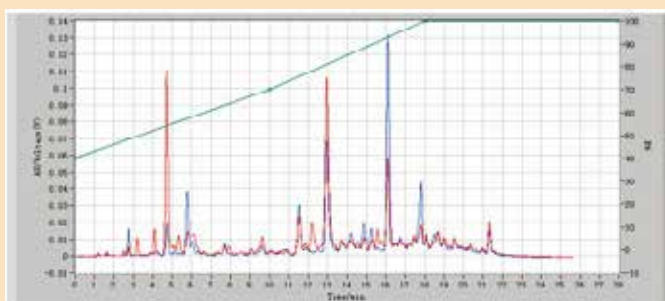
Flow Rate: 4 mL/min; Detector: UV 254 nm;
 Injection: 50 µL.



Durashell C18(L), 30×100 mm, 5 µm, 150 Å
 Mobile Phase: A: Water B: ACN

| Time/min | B% |
|----------|-----|
| 0 | 40 |
| 10 | 70 |
| 18 | 100 |
| 28 | 100 |

Flow Rate: 35 mL/min; Detector: UV 254 nm;
 Injection: 500 µL.





Columns Ordering Information

Average Pore Size: 100 Å

| Type | Dimension (mm) | Particle (µm) | Venusil® HILIC | Innoval C8 | Innoval Silica | Innoval ODS-2 |
|------------------|----------------|---------------|----------------|-------------|----------------|---------------|
| Semi-preparative | 10×150 | 5 | VH951510-0 | IX851510-0 | ISi951510-0 | IX951510-2 |
| | 10×250 | 5 | VH952510-0 | IX852510-0 | ISi952510-0 | IX952510-2 |
| Preparative | 21.2×50 | 5 | VH950520-0 | IX850520-0 | ISi950520-0 | IX950520-2 |
| | 21.2×150 | 5 | VH951520-0 | IX851520-0 | ISi951520-0 | IX951520-2 |
| | 21.2×250 | 5 | VH952520-0 | IX852520-0 | ISi952520-0 | IX952520-2 |
| | 30×100 | 5 | VH951030-0 | IX851030-0 | ISi951030-0 | IX951030-2 |
| | 30×150 | 5 | VH951530-0 | IX851530-0 | ISi951530-0 | IX951530-2 |
| | 30×250 | 5 | VH952530-0 | IX852530-0 | ISi952530-0 | IX952530-2 |
| Guard cartridge | 10×10 | 5 | VH950110-0S | IX850110-0S | ISi950110-0S | IX950110-2S |
| | 21.2×10 | 5 | VH950120-0 | IX850120-0 | ISi950120-0 | IX950120-2 |
| Semi-preparative | 10×150 | 10 | VH901510-0 | IX801510-0 | ISi901510-0 | IX901510-2 |
| | 10×250 | 10 | VH902510-0 | IX802510-0 | ISi902510-0 | IX902510-2 |
| Preparative | 21.2×50 | 10 | VH900520-0 | IX800520-0 | ISi900520-0 | IX900520-2 |
| | 21.2×150 | 10 | VH901520-0 | IX801520-0 | ISi901520-0 | IX901520-2 |
| | 21.2×250 | 10 | VH902520-0 | IX802520-0 | ISi902520-0 | IX902520-2 |
| | 30×100 | 10 | VH901030-0 | IX801030-0 | ISi901030-0 | IX901030-2 |
| | 30×150 | 10 | VH901530-0 | IX801530-0 | ISi901530-0 | IX901530-2 |
| | 30×250 | 10 | VH902530-0 | IX802530-0 | ISi902530-0 | IX902530-2 |
| | 50×150 | 10 | VH901550-0 | IX801550-0 | ISi901550-0 | IX901550-2 |
| | 50×250 | 10 | VH902550-0 | IX802550-0 | ISi902550-0 | IX902550-2 |
| Guard cartridge | 10×10 | 10 | VH900110-0S | IX800110-0S | ISi900110-0S | IX900110-2S |
| | 21.2×10 | 10 | VH900120-0 | IX800120-0 | ISi900120-0 | IX900120-2 |

Average Pore Size: 100 Å

| Type | Dimension(mm) | Particle(µm) | Innoval ODS-2 |
|------------------|---------------|--------------|---------------|
| Semi-preparative | 10×150 | 7 | IX971510-2 |
| | 10×250 | 7 | IX972510-2 |
| Preparative | 21.2×150 | 7 | IX971520-2 |
| | 21.2×250 | 7 | IX972520-2 |
| | 30×150 | 7 | IX971530-2 |
| | 30×250 | 7 | IX972530-2 |
| | 50×250 | 7 | IX972550-2 |
| | 21.2×10 | 7 | IX970120-2 |
| Guard cartridge | 10×10 | 7 | IX970110-2S |

Average Pore Size: 110 Å

| Type | Dimension(mm) | Particle(µm) | UnisolC18(2) |
|------------------|---------------|--------------|--------------|
| Semi-preparative | 10×150 | 5 | UO951510-2 |
| | 10×250 | 5 | UO952510-2 |
| Preparative | 21.2×50 | 5 | UO950520-2 |
| | 21.2×150 | 5 | UO951520-2 |
| | 21.2×250 | 5 | UO952520-2 |
| | 30×100 | 5 | UO951030-2 |
| | 30×150 | 5 | UO951530-2 |
| | 30×250 | 5 | UO952530-2 |
| Guard cartridge | 10×10 | 5 | UO950110-2S |
| | 21.2×10 | 5 | UO950120-2 |
| Semi-preparative | 10×150 | 10 | UO901510-2 |
| | 10×250 | 10 | UO902510-2 |
| Preparative | 21.2×50 | 10 | UO900520-2 |
| | 21.2×150 | 10 | UO901520-2 |
| | 21.2×250 | 10 | UO902520-2 |
| | 30×100 | 10 | UO901030-2 |
| | 30×150 | 10 | UO901530-2 |
| | 30×250 | 10 | UO902530-2 |
| | 50×150 | 10 | UO901550-2 |
| | 50×250 | 10 | UO902550-2 |
| Guard cartridge | 10×10 | 10 | UO900110-2S |
| | 21.2×10 | 10 | UO900120-2 |

Average Pore Size: 120 Å

| Type | Dimension(mm) | Particle(µm) | Venusil® PrepG C18 |
|------------------|---------------|--------------|--------------------|
| Semi-preparative | 10×150 | 10 | VX901510-A |
| | 10×250 | 10 | VX902510-A |
| Preparative | 21.2×50 | 10 | VX900520-A |
| | 21.2×150 | 10 | VX901520-A |
| | 21.2×250 | 10 | VX902520-A |
| | 30×100 | 10 | VX901030-A |
| | 30×150 | 10 | VX901530-A |
| | 30×250 | 10 | VX902530-A |
| | 50×150 | 10 | VX901550-A |
| | 50×250 | 10 | VX902550-A |
| Guard cartridge | 10×10 | 10 | VX900110-AS |
| | 21.2×10 | 10 | VX900120-A |



Average Pore Size: 150 Å

| Type | Dimension(mm) | Particle(μm) | Venusil® ASB C18 | Durashell C18(L) |
|------------------|---------------|--------------|------------------|------------------|
| Semi-preparative | 10×150 | 5 | VS951510-0 | DC951510-L |
| | 10×250 | 5 | VS952510-0 | DC952510-L |
| Preparative | 21.2×50 | 5 | VS950520-0 | DC950520-L |
| | 21.2×150 | 5 | VS951520-0 | DC951520-L |
| | 21.2×250 | 5 | VS952520-0 | DC952520-L |
| | 30×100 | 5 | VS951030-0 | DC951030-L |
| | 30×150 | 5 | VS951530-0 | DC951530-L |
| | 30×250 | 5 | VS952530-0 | DC952530-L |
| | 10×10 | 5 | VS950110-0S | DC950110-LS |
| Guard cartridge | 21.2×10 | 5 | VS950120-0 | DC950120-L |
| Semi-preparative | 10×150 | 10 | VS901510-0 | DC901510-L |
| | 10×250 | 10 | VS902510-0 | DC902510-L |
| Preparative | 21.2×50 | 10 | VS900520-0 | DC900520-L |
| | 21.2×150 | 10 | VS901520-0 | DC901520-L |
| | 21.2×250 | 10 | VS902520-0 | DC902520-L |
| | 30×100 | 10 | VS901030-0 | DC901030-L |
| | 30×150 | 10 | VS901530-0 | DC901530-L |
| | 30×250 | 10 | VS902530-0 | DC902530-L |
| | 50×150 | 10 | VS901550-0 | DC901550-L |
| | 50×250 | 10 | VS902550-0 | DC902550-L |
| 10×10 | 10 | VS900110-0S | DC900110-LS | |
| Guard cartridge | 21.2×10 | 10 | VS900120-0 | DC900120-L |

Bulk Media Ordering Information

| Type | Particle (µm) | Pore Size (Å) | Pack (g) | Part. No. |
|--------------------|----------------|---------------|----------|-------------|
| Unisol C18(2) | 5 | 110 | 10 | UO950010-2 |
| | 5 | 110 | 100 | UO950100-2 |
| | 5 | 110 | 1000 | UO951000-2 |
| | 10 | 110 | 10 | UO900010-2 |
| | 10 | 110 | 100 | UO900100-2 |
| | 10 | 110 | 1000 | UO901000-2 |
| Venusil® HILIC | 5 | 100 | 10 | VH950010-0 |
| | 5 | 100 | 100 | VH950100-0 |
| | 5 | 100 | 1000 | VH951000-0 |
| | 10 | 100 | 10 | VH900010-0 |
| | 10 | 100 | 100 | VH900100-0 |
| | 10 | 100 | 1000 | VH901000-0 |
| Venusil® PrepG C18 | 10 | 120 | 10 | VX900010-A |
| | 10 | 120 | 100 | VX900100-A |
| | 10 | 120 | 1000 | VX901000-A |
| Venusil® ASB C18 | 5 | 150 | 10 | VS950010-0 |
| | 5 | 150 | 100 | VS950100-0 |
| | 5 | 150 | 1000 | VS951000-0 |
| | 10 | 150 | 10 | VS900010-0 |
| | 10 | 150 | 100 | VS900100-0 |
| | 10 | 150 | 1000 | VS901000-0 |
| Durashell C18(L) | 5 | 150 | 10 | DC950010-L |
| | 5 | 150 | 100 | DC950100-L |
| | 5 | 150 | 1000 | DC951000-L |
| | 10 | 150 | 10 | DC900010-L |
| | 10 | 150 | 100 | DC900100-L |
| | 10 | 150 | 1000 | DC901000-L |
| Innoval ODS-2 | 5 | 100 | 10 | IX950010-2 |
| | 5 | 100 | 100 | IX950100-2 |
| | 5 | 100 | 1000 | IX951000-2 |
| | 7 | 100 | 10 | IX970010-2 |
| | 7 | 100 | 100 | IX970100-2 |
| | 7 | 100 | 1000 | IX971000-2 |
| | 10 | 100 | 10 | IX900010-2 |
| | 10 | 100 | 100 | IX900100-2 |
| | 10 | 100 | 1000 | IX901000-2 |
| | Innoval Silica | 5 | 100 | 10 |
| 5 | | 100 | 100 | ISi950100-0 |
| 5 | | 100 | 1000 | ISi951000-0 |
| 10 | | 100 | 10 | ISi900010-0 |
| 10 | | 100 | 100 | ISi900100-0 |
| 10 | | 100 | 1000 | ISi901000-0 |

Claricep™ Flash Chromatography Media and Columns

Column chromatography has been and will be continuously used as a major purification method for synthetic and natural products. Traditional silica-based flash chromatography columns have many drawbacks: 1) high surface activity that causes instability of certain compounds, 2) unwanted tailing or overly long retention of basic compounds due to acid/base interaction or metal chelating effect, and 3) poor reproducibility.

Bonna-Agela Technologies have developed a technology that can specifically deactivate the silica media. Our columns offer significantly improved performance and much less undesirable silica surface activities than the regular flash columns.

We provide two types flash columns packed with irregular silica or spherical silica.



Claricep™ Irregular Flash Columns

Claricep™ CS Silica Columns

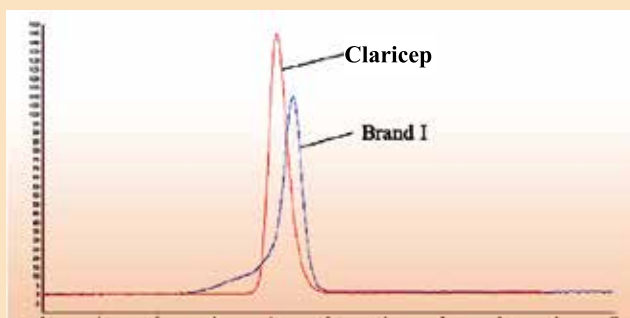
The packing is ultra pure grade silica (specially washed with acid and DI water; narrow particle size and water content control).

Column Specification

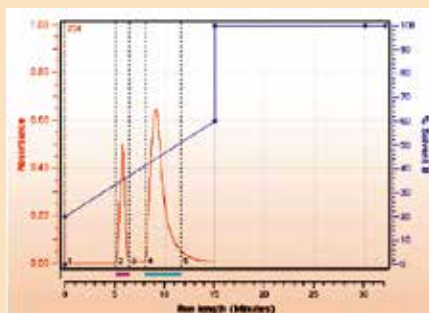
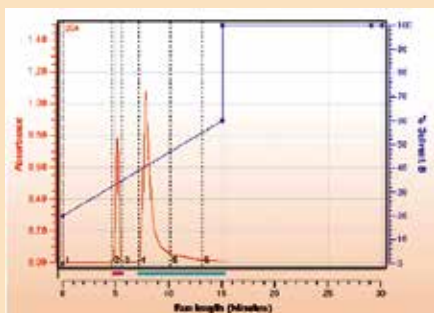
Surface Area: 480 m²/g; Surface pH: 6.3-7.2; Water Content: 3.0-5.0 %; Average Particle Size: 40-60 μm; Average Pore Size: 60 Å.

Aniline Flash Column Tests Report

Column: Claricep™ CS (40 g), Brand I (40 g Si)
Mobile Phase: Dichloromethane : methanol = 99 : 1
Flow Rate: 20 mL/min
Detector: UV 254 nm
Temperature: Ambient
Rt: Brand I: 4.373 min; Claricep™: 4.090 min



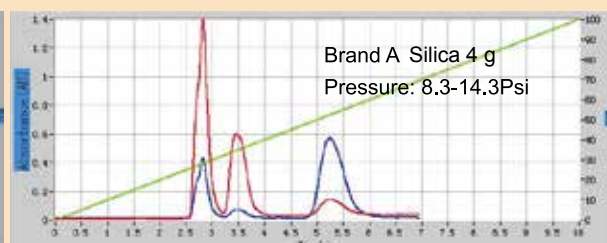
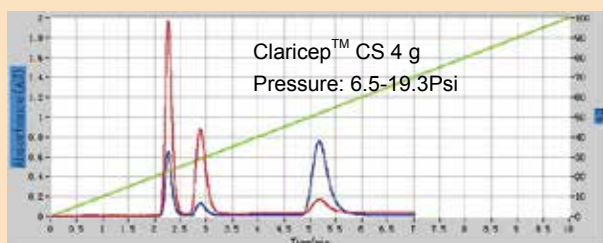
Chromatography Comparison



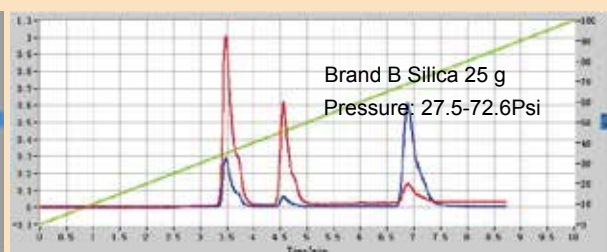
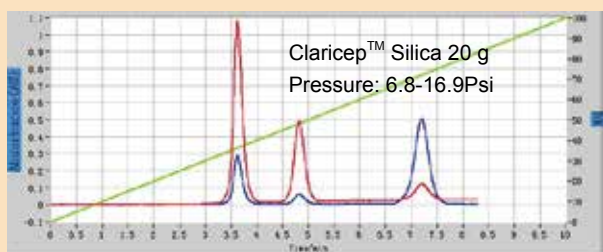
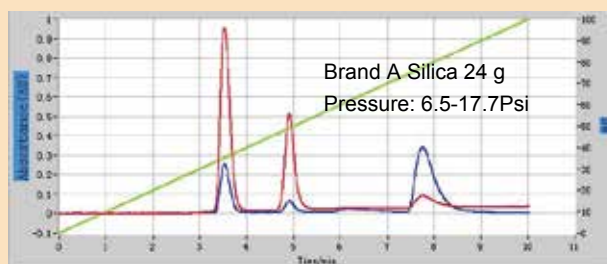
Sample: Phenyl acetone,
4-aminobenzoic acid
Mobile Phase: Hexane/ethylacetate
(gradient)
Detector: 254 nm
Temperature: Ambient

Testing of Different Brand Flash Column

Sample: PABA, Acetylbenzene, Methyl Paraben
A: Petroleum ether; B: Ethyl acetate
Flow Rate: 20 mL/min
Detector: UV 254/280 nm

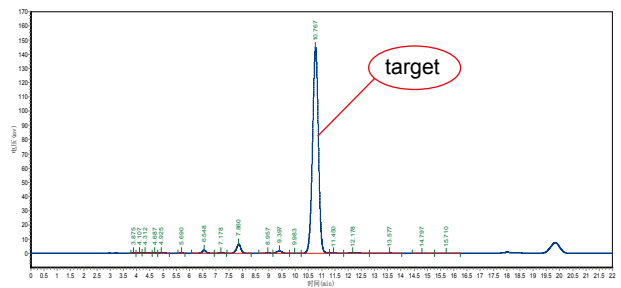
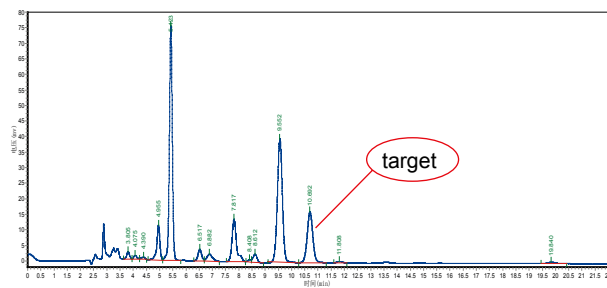


Sample: PABA, Acetylbenzene, Methyl Paraben
A: Petroleum ether; B: Ethyl acetate
Flow Rate: 35 mL/min
Detector: UV 254/280 nm



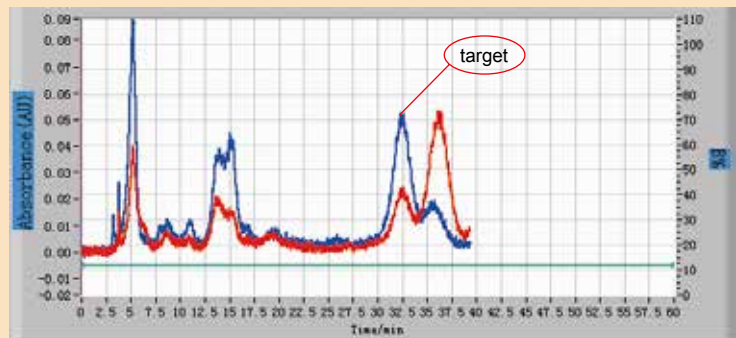


The Purify of Duantioxidant in Sesame Oil



Column: Venusil® XBP C18, 4.6×150 mm, 5 μm
Mobile Phase: MeOH: Water=75:25

Instrument: CHEETAH® MP 100
Column: Claricep™ Silica (CS), 40-60 μm, 60 Å, 12 g
Mobile Phase: acetic ether:petroleum ether=12:88
Flow Rate: 18 mL/min
Sample: 400 mg/20 mL
Injection: 4 mL



Claricep™ CM Silica Columns

Bonna-Agela Technologies have developed a technology that can specifically deactivate silica surface. Our columns show significantly improved performance and much less undesirable silica surface activities than the regular flash columns. Our columns may also provide alternative selectivity.

The following figures present a comparison of column performance for a Bonna-Agela's deactivated silica column vs an unmodified silica flash column.

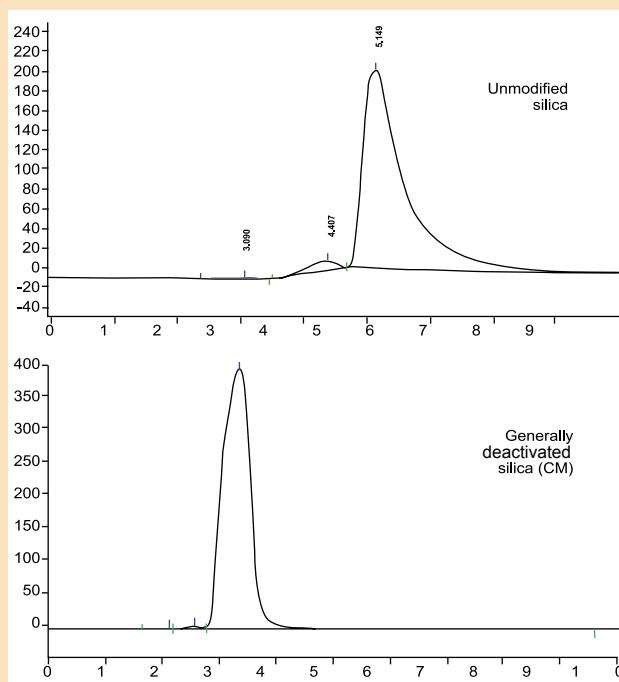
Chromatogram Comparison of Catechol on Different Silica

Test:

The silica to be tested was packed into a stainless steel column of 4.6×150 mm and tested on a HPLC system

Conditions:

Sample: Catechol 100 µg/mL in mobile phase
Mobile Phase: dichloromethane:methanol = 98:2
Temperature: 30°C
Detector: UV 254 nm
Injection: 5 µL



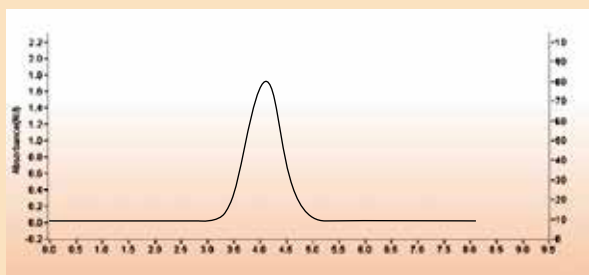


Claricep™ HILIC Columns

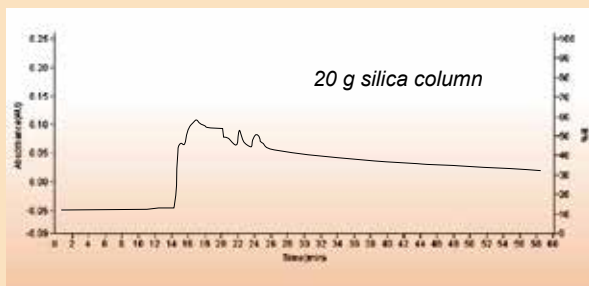
We are now introducing HILIC phases for flash chromatography applications. Bonna-Agela's HILIC columns are compatible with polar and aqueous solvents, such as methanol, acetonitrile and water, which allow much easier solvent handling than conventional normal phase separations. It becomes possible to separate and elute polar compounds that are strongly retained in the regular normal-phase mode or weakly retained in the reversed-phase mode. Moreover, these HILIC packed columns can be reused multiple times.

1. Solution for compounds that are not soluble in non- or low polar solvents (hexane, isopropanol, toluene and dichloromethane).
2. Solution for highly polar compounds which have too much retention on silica columns.
3. Solution for a mixture of compounds with a broad range of polarity (non-polar, semi-polar, and high polar) with alternative selectivity.

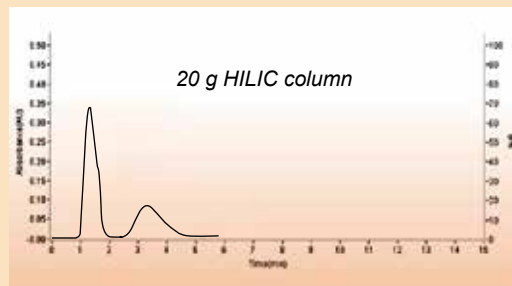
Surface Area: 480 m²/g; Water content: 3.0-5.0 %; Average Particle Size: 40-60 μm;
Average Pore Size: 60 Å; Carbon loading: 5.0 %



Sample: 10 mg of uridine in 3 mL hot water
Column: 20 g HILIC column
Mobile Phase: water
Flow Rate: 12 mL/min
Detector: UV 254 nm



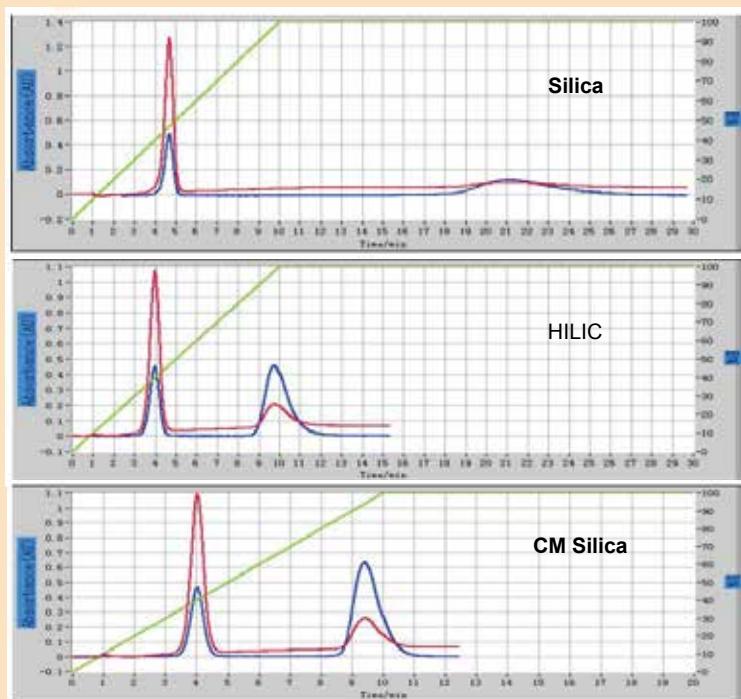
Sample: 100 mg VC and 70 mg VB2, direct solid loading
Mobile Phase: 0-2 min EtOAc; 2-22 min MeOH (0-100 %);
22-52 min MeOH
Flow Rate: 25 mL/min
Detector: UV 280 nm



Sample: 100 mg VC and 70 mg VB2, direct solid loading
Mobile Phase: 0.1 % TFA : ACN = 99 : 1
Flow Rate: 25 mL/min
Detector: UV 280 nm

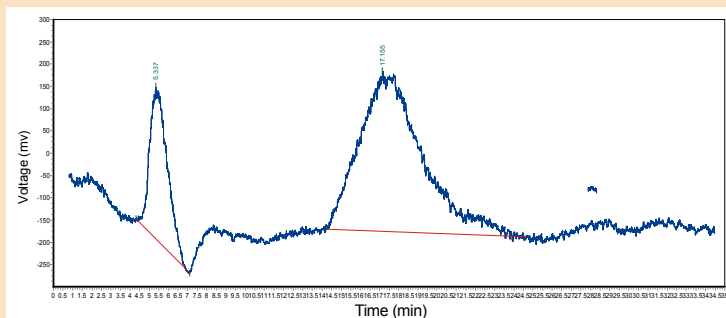
Separation Comparison of Polar Compounds with Normal Phase Application (Aniline + Caffeine)

Sample: Aniline+Caffeine
 Column: 12 gram
 Mobile Phase: A: Hexane; B: Ethyl acetate
 B: 0-100 % 10 min
 100 %-100 % 20 min
 Detector: UV 254 nm, 280 nm
 Flow Rate: 20 mL/min



Isolation of Herba Leonuri

Column: Claricep™ HILIC, 40-60 μm, 60 Å, 4 g
 (3 columns in tandem)
 Mobile Phase: ACN:0.2 %AA=80:20
 Flow Rate: 8 mL/min
 Detector: ELSD 45°C





Claricep™ Reversed-phase Columns

The media is chemically bonded with nonpolar alky chains such C4, C8 or C18 groups. The term reversed-phase describes the separation mode that just the opposite of the normal phase chromatography. In reversed-phase mode, non-polar or hydrophobic compounds are strongly retained, and polar samples are weakly retained, moving faster through the packing bed. The use of reversed-phase media for purification is becoming more popular because of its high reproducibility and broad applicability. A blend of water and miscible polar organic solvents such as acetonitrile or methanol is used as mobile phase to ensure the proper interaction of analytes with the non-polar alky packing surface. C18 or octadecyl silane (ODS) is the most popular type of reversed-phase packing. It applies to the separation of many compounds.

Claricep™ C18 Columns

We can provide two pore size: 60 Å and 100 Å.

Characteristics

Surface Area: 480 m²/g; Average Particle Size: 40-60 µm, Average Pore Size: 60 Å; Carbon loading: 15 %

Surface Area: 320 m²/g; Average Particle Size: 40-60 µm, Average Pore Size: 100 Å; Carbon loading: 14 %

Purification of Clethodim

Column: Flash C18(330 g, 40-60 µm, 60 Å)

Mobile phase: A: Acid solution

B: 0.01 % formic acid in acetonitrile

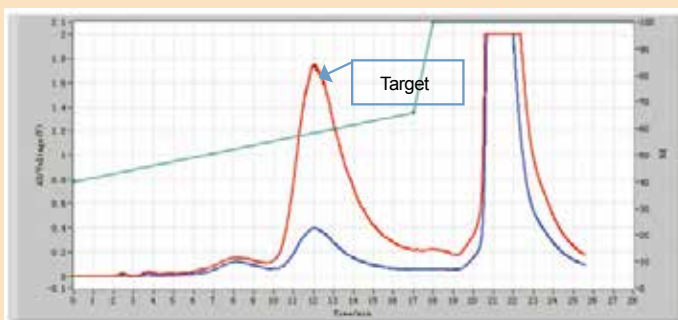
Gradient:

| Time/min | B% |
|----------|-----|
| 0 | 40 |
| 17 | 66 |
| 18 | 100 |
| 28 | 100 |

Flow rate: 100 mL/min

Detector: UV 254 nm, 280 nm

Sample loading: 10 mL



Claricep™ Spherical Flash Columns

Claricep™ spherical products use silica with narrowly controlled size distribution. It has high column efficiency. Bonna-Agela Technologies have developed a variety format of reversed phase and normal phase columns. The reversed phase includes C18, AQ C18, C8 and HLP, etc. The normal phase includes CS, CM and HILIC, etc.

Claricep™ Spherical Silica Columns

Characteristics

20 µm, 100 Å, Water Content: 3.0-5.0 %; Surface Area: 320 m²/g

20-35 µm, 60 Å, Water Content: 3.0-5.0 %; Surface Area: 480 m²/g

20-35 µm, 100 Å, Water Content: 3.0-5.0 %; Surface Area: 320 m²/g

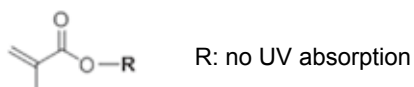
Purification of Sample with Metacrylic Acid Ester Group

Sample Information

The sample is colorless liquid, which is sensitivity to light and the contact of sample is about 60 %.

Dissolve 0.2 mL of sample into 1.5mL ethanol under ultrasonic.

Structure:



Small molecular weight with UV absorption of metacrylic acid ester

Column: Flash column silica (20-35 µm, 100 Å, 12 g, 2 columns in tandem)

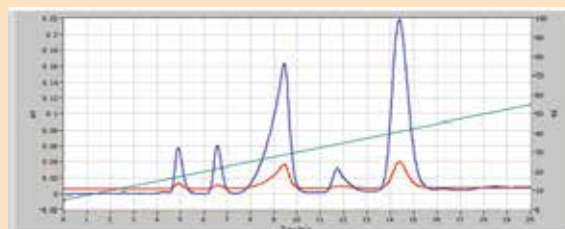
Mobile Phase: A: hexane B: ethanol

Gradient

| Time/min | B% |
|----------|----|
| 0 | 5 |
| 20 | 55 |

Flow Rate: 12 mL/min; Detector: UV 254 nm; 220 nm;

Sample Loading: 0.2 mL



Column: Flash column silica (20 µm, 100 Å, 12 g, 2 columns in tandem)

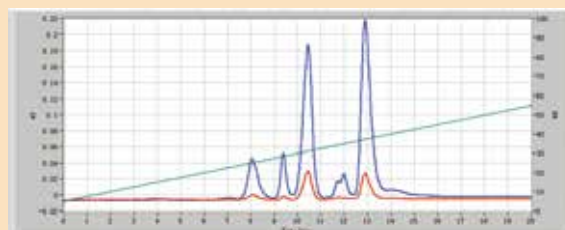
Mobile Phase: A: hexane B: ethanol

Gradient

| Time/min | B% |
|----------|----|
| 0 | 5 |
| 20 | 55 |

Flow Rate: 12 mL/min; Detector: UV 254 nm; 220 nm;

Sample Loading: 0.2 mL



Small particle size with 20 µm is a good choice for complex sample with polarity



Claricep™ Spherical C18 Columns

Characteristics

20 μm , 100 \AA , Carbon loading: 14 %; (NEW)

20-35 μm , 60 \AA , Carbon loading: 15 %;

20-35 μm , 100 \AA , Carbon loading: 14 %;

50 μm , 120 \AA , Carbon loading: 14 %;

Better separation performance-- Claricep™ Spherical C18 Columns

Sample Information

Sample is tetrandrine extracted from natural products, white powder.

Sample: Tetrandrine

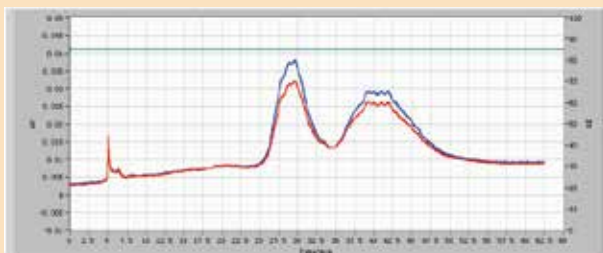
Mobile Phase: A: Water; B: Methanol with 0.06% diethylamine

Detector: UV 254 nm, 282 nm

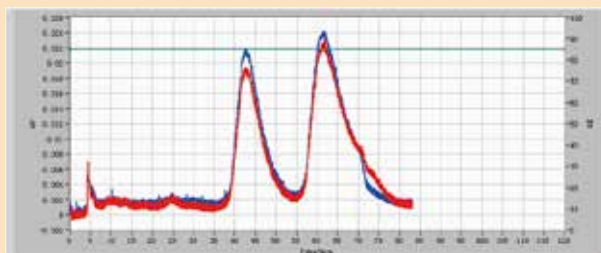
Gradient:

| Time/min | B% |
|----------|----|
| 0 | 85 |
| 100 | 85 |

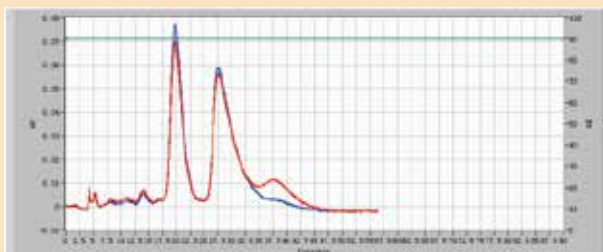
1) Irregular C18 (40-60 μm , 100 \AA , 12 g,
3 columns in tandem)



2) Claricep™ Spherical C18 (20-35 μm , 100 \AA , 12 g,
3 columns in tandem)



3) Claricep™ Spherical C18 (20 μm , 100 \AA , 12 g,
3 columns in tandem)



Purification with 20-35 µm column

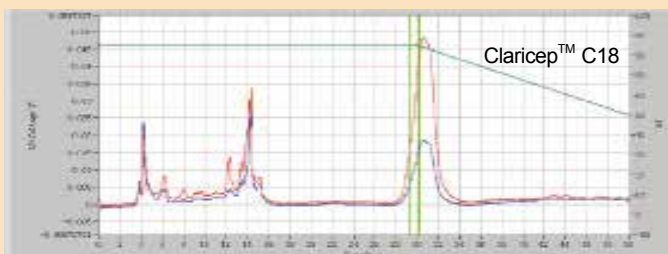
Column: Claricep™ C18, 20-35 µm, 100 Å , 80 g, 2 columns in tandem

Mobile Phase: A: ACN, B: water

| Time/min | B% |
|----------|----|
| 0 | 85 |
| 30 | 85 |
| 50 | 50 |

Detector: UV 254 nm, 280 nm

Flow Rate: 60 mL/min



Isolation of Polypeptide

Column: Claricep™ Spherical C18, 20-35 µm, 100 Å (12 g/2 columns in tandem)

Flow Rate: 1 mL/min

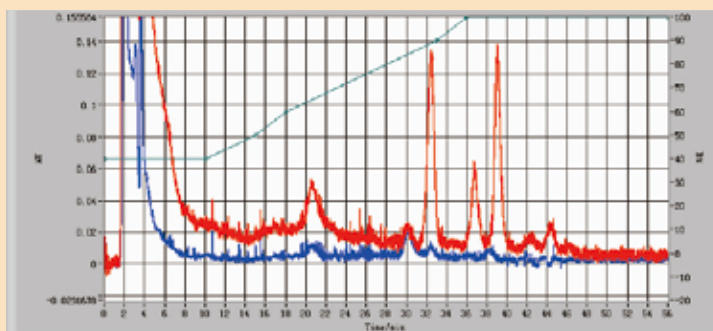
Detector: UV 205 nm, 280 nm

Injection: 10 µL

Temperature: 40°C

Mobile Phase:

| Time/min | A (H ₂ O+0.01%TFA) | B(ACN) |
|----------|-------------------------------|--------|
| 0 | 95 % | 5 % |
| 3 | 95 % | 5 % |
| 5 | 70 % | 30 % |
| 25 | 20 % | 80 % |
| 30 | 20 % | 80 % |
| 31 | 10 % | 90 % |
| 35 | 10 % | 90 % |





Claricep™ Spherical AQ C18 Columns

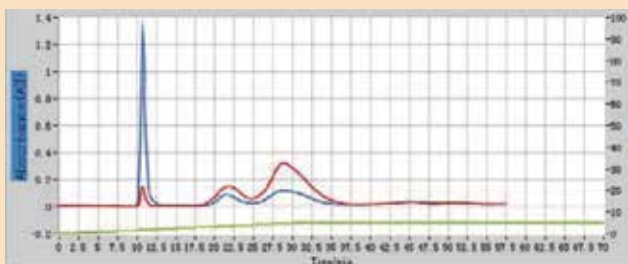
Following the success of Bonna-Agela's Unisol C18 HPLC columns, we now introduce a hydrophilic reversed phase C18 for the flash chromatography applications, which offer unprecedented separation performance for compounds of a wide range of properties from hydrophilic to hydrophobic: polar, semi-polar and non-polar compounds.

Characteristics

Surface Area: 320 m²/g; Surface Average Particle Size: 20-35 μm, Average Pore Size: 100 Å; Carbon loading: 15 %.
 Surface Area: 320 m²/g; Surface Average Particle Size: 20 μm, Average Pore Size: 100 Å; Carbon loading: 15 %.

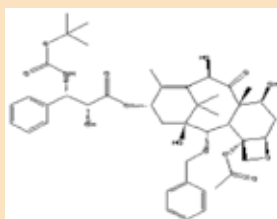
Isolation of Iridoids Compounds

Sample: Iridoids Compounds
 Column: Claricep™ Spherical AQ C18, 20-35 μm, 100 Å
 Mobile Phase: MeOH : Water : Formic acid
 Detector: UV 231 nm, 214 nm



Purification of Taxol with AQ C18

Sample Information

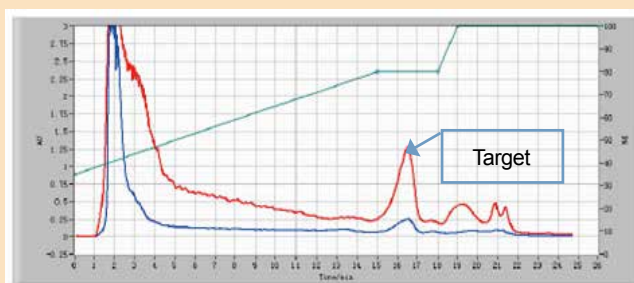


The magenta sample is a extract of Chinese yew. The target is taxol, which applies to ovarian and breast cancer. Dissolve 1 g of sample into 20 mL methanol and filtrate, get a solution with a concentration of 50 mg/mL

Flash Condition

Column: Claricep™ AQ C18, 20-35 μm, 100 Å, 120 g
 Mobile Phase: A: Water; B: Methanol
 Flow Rate: 83 mL/min
 Detector: UV 230 nm, 254 nm
 Sample Loading: 20 mL
 Gradient:

| Time/min | B% |
|----------|-----|
| 0 | 35 |
| 15 | 80 |
| 18 | 80 |
| 19 | 100 |
| 25 | 100 |



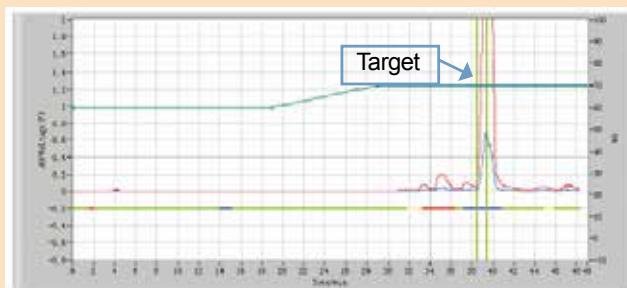
Fraction between 15-17 min

Concentrate the solution with rotating at 40°C, centrifuge and solve the supernatant into methanol, the whole volume is about 11 mL, filtrate and load that on the column.

High Pressure Preparation

Sample: Taxol Extract
 Column: Unisol C18, 5 µm, 100 Å, 30×250 mm
 Mobile Phase: A: Water (0.05 %TFA)
 B: Methanol (0.02 %TFA)
 Flow Rate: 33 mL/min
 Detector: UV 230 nm, 254 nm
 Sample Loading: 4 mL
 Gradient:

| Time/min | B% |
|----------|----|
| 0 | 60 |
| 19 | 60 |
| 29 | 70 |
| 49 | 70 |

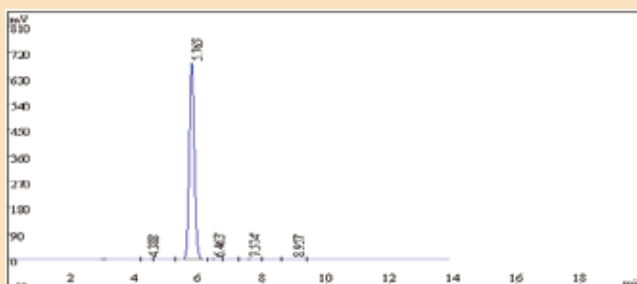


Collect the fraction from 38.5-40.3 min

Concentrate the solution with rotating at 40°C , centrifuge and solve the supernatant into methanol, the whole volume is about 11 mL, filtrate and load that on the column.

Purity Test

Column: Unisol C18, 5 µm, 100 Å, 4.6×250 mm
 Mobile Phase: Water(0.05 %TFA): ACN(0.02 %TFA)
 Flow Rate: 1 mL/min
 Detector: UV 230 nm



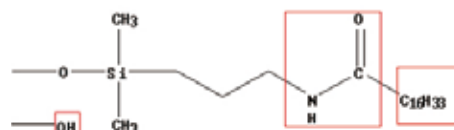
| No | Rt | Concentration | Peak area | Peak separation | Count plate | Tails |
|----|-------|---------------|-----------|-----------------|-------------|-------|
| 1 | 4.388 | 0.1565 | 12053 | 5.29 | 6255 | 1.07 |
| 2 | 5.765 | 98.82 | 7611512 | 0.00 | 6314 | 1.10 |
| 3 | 6.463 | 0.2516 | 19383 | 0.00 | 7953 | 0.99 |
| 4 | 7.574 | 0.4349 | 33501 | 0.00 | 6899 | 1.02 |
| 5 | 8.957 | 0.3382 | 26049 | 0.00 | 7037 | 1.01 |

Processed with double-surface modification technology, the Unisol C18 column has a hydrophilic surface and the increased Si-OH group performs well on the retention and separation for taxol sample. The purity of target sample is up to 98.8 %. The sample is a product of biology ferment with high content of impurity. Content of target compounds could be up to 90 % through flash media and the purity is up to 98 % after high pressure column purification.



Claricep™ Spherical HLP Columns

Claricep™ HLP column using a synergistic reaction of –Amide, –OH and –R, and show different selectivity. Greatly improved peak shape for basic compounds, and enhanced retention and separation ability of polar compounds and steric isomers. This material show much better loading capacity for polar compounds for preparative applications compare with traditional C18 material.



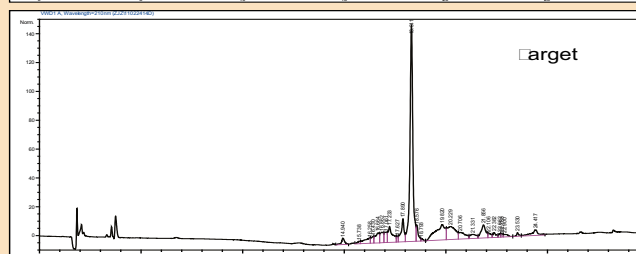
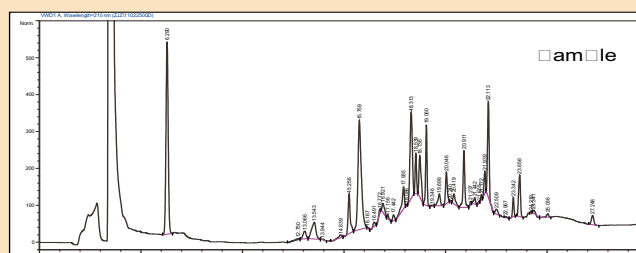
Characteristics

Surface Area: 320 m²/g; Average Particle Size: 20-35 μm, Average Pore Size: 100 Å; Carbon Loading: 12 %.
 Surface Area: 320 m²/g; Average Particle Size: 20 μm, Average Pore Size: 100 Å; Carbon Loading: 12 %.

The Extraction of Small Peptides in Leavening

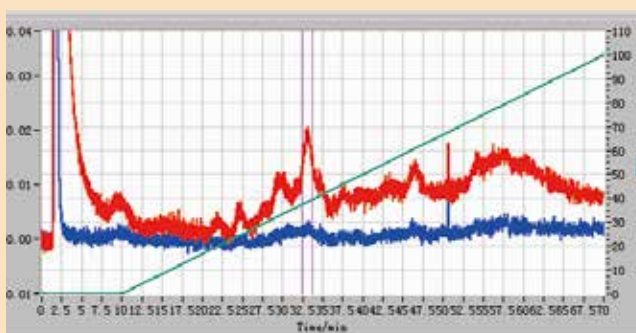
Column: Venusil® HLP, 5 μm, 4.6×250 mm
 Mobile Phase: A: Water, B: Acetonitrile
 Flow Rate: 1.0 mL/min
 Gradient

| Time/min | B% |
|----------|----|
| 0 | 5 |
| 5 | 5 |
| 10 | 20 |
| 20 | 80 |
| 30 | 80 |



Column: Claricep™ Spherical HLP (4×3)
 Mobile Phase: A: Water, B: Acetonitrile
 Flow Rate: 18 mL/min
 Monitoring Detector: UV 280 nm
 Collecting Detector: UV 220 nm

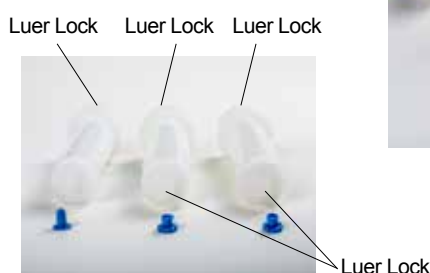
| B% | Start | End | Duration (min) |
|----|-------|-----|----------------|
| 1 | 0 | 0 | 5 |
| 2 | 0 | 0 | 10 |
| 3 | 0 | 100 | 60 |



Claricep™ Screw-on Flash Columns

The Claricep™ series are a new design of flash columns from Bonna-Agela. Besides performance and diversity of chemistry we committed to, the new formats emphasize simplicity of use, convenience of sample loading and adaptability of tubing connectivity across different platforms. This family of flash columns features:

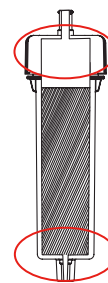
- Hand screw-on head cap
- Higher pressure tolerance (180 psi)
- Choice of solid sample loading
- Conventional or Luer lock fittings



Claricep™ i-Series

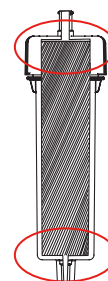
The i-Series feature a managed column head space with a secured screw-on lid. This design allows either loading of liquid sample directly onto column head or loading of impregnated solid sample into the space. Using this format, users will benefit:

- Choice of loading method based on sample properties
- Narrow band for liquid samples because of wide loading area
- Dry-loading of solid impregnated samples minimizes band broadening
- Customized loading method upon user's request



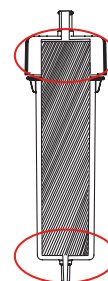
Claricep™ s-Series

The s-Series columns are fully packed without a head void. But the Luer lock fittings for both inlet and outlet allow easy operation of tandem columns or coupling of loading cartridge. Refer page 55 for the guide to use "Prepacked Solid Load Cartridges".



Claricep™ c-Series

The c-Series share the same design, but the column outlet does not have a luer lock structure, which simplifies tubing connection across different flash system of other vendors.





Claricep™ Column Ordering Information

Irregular Silica; Average Particle Size: 40-60 µm; Average Pore Size: 60 Å.

| Type | Claricep™ i-Series | Claricep™ s-Series | Claricep™ c-Series | Claricep™ | Silica Amount (g) | Quantity (pk) |
|-----------------------------------|-----------------------|-----------------------|-----------------------|-------------|----------------------|------------------|
| Silica (CS) Standard Silica | | | | CS140004-0 | 4 | 20 |
| | SN-CS140012-0 | S-CS140012-0 | C-CS140012-0 | CS140012-0 | 12 | 20 |
| | SN-CS140020-0 | S-CS140020-0 | C-CS140020-0 | CS140020-0 | 20 | 20 |
| | SN-CS140040-0 | S-CS140040-0 | C-CS140040-0 | CS140040-0 | 40 | 10 |
| | SN-CS140080-0 | S-CS140080-0 | C-CS140080-0 | CS140080-0 | 80 | 5 |
| | SN-CS140120-0 | S-CS140120-0 | C-CS140120-0 | CS140120-0 | 120 | 5 |
| | | | | CS140220-0 | 220 | 1 |
| | | | | CS140330-0 | 330 | 1 |
| | | | | CS140800-0 | 800 | 1 |
| | | | | CS1401500-0 | 1500 | 1 |
| Silica (CM) Deactivated Silica | | | | CM140004-0 | 4 | 20 |
| | SN-CM140012-0 | S-CM140012-0 | C-CM140012-0 | CM140012-0 | 12 | 20 |
| | SN-CM140020-0 | S-CM140020-0 | C-CM140020-0 | CM140020-0 | 20 | 20 |
| | SN-CM140040-0 | S-CM140040-0 | C-CM140040-0 | CM140040-0 | 40 | 10 |
| | SN-CM140080-0 | S-CM140080-0 | C-CM140080-0 | CM140080-0 | 80 | 5 |
| | SN-CM140120-0 | S-CM140120-0 | C-CM140120-0 | CM140120-0 | 120 | 5 |
| | | | | CM140330-0 | 330 | 1 |
| | | | | CM140800-0 | 800 | 1 |
| | | | | CM1401500-0 | 1500 | 1 |
| | C18 | | | | CO140004-0 | 4 |
| SN-CO140012-0 | | S-CO140012-0 | C-CO140012-0 | CO140012-0 | 12 | 20 |
| SN-CO140020-0 | | S-CO140020-0 | C-CO140020-0 | CO140020-0 | 20 | 20 |
| SN-CO140040-0 | | S-CO140040-0 | C-CO140040-0 | CO140040-0 | 40 | 10 |
| SN-CO140080-0 | | S-CO140080-0 | C-CO140080-0 | CO140080-0 | 80 | 5 |
| SN-CO140120-0 | | S-CO140120-0 | C-CO140120-0 | CO140120-0 | 120 | 5 |
| | | | | CO140220-0 | 220 | 1 |
| | | | | CO140330-0 | 330 | 1 |
| | | | | CO140800-0 | 800 | 1 |
| | | | | CO1401500-0 | 1500 | 1 |
| AQ C18 | | | | CQ140004-0 | 4 | 20 |
| | SN-CQ140012-0 | S-CQ140012-0 | C-CQ140012-0 | CQ140012-0 | 12 | 20 |
| | SN-CQ140020-0 | S-CQ140020-0 | C-CQ140020-0 | CQ140020-0 | 20 | 20 |
| | SN-CQ140040-0 | S-CQ140040-0 | C-CQ140040-0 | CQ140040-0 | 40 | 10 |
| | SN-CQ140080-0 | S-CQ140080-0 | C-CQ140080-0 | CQ140080-0 | 80 | 5 |
| | SN-CQ140120-0 | S-CQ140120-0 | C-CQ140120-0 | CQ140120-0 | 120 | 5 |
| | | | | CQ140330-0 | 330 | 1 |
| | | | | CQ140800-0 | 800 | 1 |
| | | | | CQ1401500-0 | 1500 | 1 |

Note: The products listed in ordering information table meet the requirements of flash system from Bonna-Agela Technologies. Columns above 800 g are compatible with interplant flash system from other companies, for example, the Cat.No of 800 g interplant column C18 is CO140800-I

Irregular Silica; Average Particle Size: 40-60 µm; Average Pore Size: 60 Å.

| Type | Claricep™ i-Series | Claricep™ s-Series | Claricep™ c-Series | Claricep™ | Silica Amount (g) | Quantity (pk) |
|-----------------|-----------------------|-----------------------|-----------------------|--------------|----------------------|------------------|
| HILIC | | | | CH140004-0 | 4 | 20 |
| | SN-CH140012-0 | S-CH140012-0 | C-CH140012-0 | CH140012-0 | 12 | 20 |
| | SN-CH140020-0 | S-CH140020-0 | C-CH140020-0 | CH140020-0 | 20 | 20 |
| | SN-CH140040-0 | S-CH140040-0 | C-CH140040-0 | CH140040-0 | 40 | 10 |
| | SN-CH140080-0 | S-CH140080-0 | C-CH140080-0 | CH140080-0 | 80 | 5 |
| | SN-CH140120-0 | S-CH140120-0 | C-CH140120-0 | CH140120-0 | 120 | 5 |
| | | | | CH140220-0 | 220 | 1 |
| | | | | CH140330-0 | 330 | 1 |
| | | | | CH140800-0 | 800 | 1 |
| | | | | CH1401500-0 | 1500 | 1 |
| NH ₂ | | | | CN140004-0 | 4 | 20 |
| | SN-CN140012-0 | S-CN140012-0 | C-CN140012-0 | CN140012-0 | 12 | 20 |
| | SN-CN140020-0 | S-CN140020-0 | C-CN140020-0 | CN140020-0 | 20 | 20 |
| | SN-CN140040-0 | S-CN140040-0 | C-CN140040-0 | CN140040-0 | 40 | 10 |
| | SN-CN140080-0 | S-CN140080-0 | C-CN140080-0 | CN140080-0 | 80 | 5 |
| | SN-CN140120-0 | S-CN140120-0 | C-CN140120-0 | CN140120-0 | 120 | 5 |
| | | | | CN140220-0 | 220 | 1 |
| | | | | CN140330-0 | 330 | 1 |
| | | | | CN140800-0 | 800 | 1 |
| | | | | CN1401500-0 | 1500 | 1 |
| C8 | | | | C8140004-0 | 4 | 20 |
| | SN-C8140012-0 | S-C8140012-0 | C-C8140012-0 | C8140012-0 | 12 | 20 |
| | SN-C8140020-0 | S-C8140020-0 | C-C8140020-0 | C8140020-0 | 20 | 20 |
| | SN-C8140040-0 | S-C8140040-0 | C-C8140040-0 | C8140040-0 | 40 | 10 |
| | SN-C8140080-0 | S-C8140080-0 | C-C8140080-0 | C8140080-0 | 80 | 5 |
| | SN-C8140120-0 | S-C8140120-0 | C-C8140120-0 | C8140120-0 | 120 | 5 |
| | | | | C8140330-0 | 330 | 1 |
| | | | | C8140800-0 | 800 | 1 |
| SAX | | | | CS140004-AX | 4 | 20 |
| | SN-CS140012-AX | S-CS140012-AX | C-CS140012-AX | CS140012-AX | 12 | 20 |
| | SN-CS140020-AX | S-CS140020-AX | C-CS140020-AX | CS140020-AX | 20 | 20 |
| | SN-CS140040-AX | S-CS140040-AX | C-CS140040-AX | CS140040-AX | 40 | 10 |
| | SN-CS140080-AX | S-CS140080-AX | C-CS140080-AX | CS140080-AX | 80 | 5 |
| | SN-CS140120-AX | S-CS140120-AX | C-CS140120-AX | CS140120-AX | 120 | 5 |
| | | | | CS140330-AX | 330 | 1 |
| | | | | CS140800-AX | 800 | 1 |
| SCX | | | | CS1401500-AX | 1500 | 1 |
| | | | | CS140004-CX | 4 | 20 |
| | SN-CS140012-CX | S-CS140012-CX | C-CS140012-CX | CS140012-CX | 12 | 20 |
| | SN-CS140020-CX | S-CS140020-CX | C-CS140020-CX | CS140020-CX | 20 | 20 |
| | SN-CS140040-CX | S-CS140040-CX | C-CS140040-CX | CS140040-CX | 40 | 10 |
| | SN-CS140080-CX | S-CS140080-CX | C-CS140080-CX | CS140080-CX | 80 | 5 |
| | SN-CS140120-CX | S-CS140120-CX | C-CS140120-CX | CS140120-CX | 120 | 5 |
| | | | | CS140330-CX | 330 | 1 |
| | | | CS140800-CX | 800 | 1 | |
| | | | CS1401500-CX | 1500 | 1 | |



Irregular Alumina; Average Particle Size: 100-200 mesh.

| Type | Claricep™ i-Series | Claricep™ s-Series | Claricep™ c-Series | Claricep™ | Silica Amount (g) | Quantity (pk) |
|-----------------|-----------------------|-----------------------|-----------------------|-------------|----------------------|------------------|
| Alumina Neutral | | | | CA140004-N | 8 | 20 |
| | SN-CA140012-N | S-CA140012-N | C-CA140012-N | CA140012-N | 20 | 20 |
| | SN-CA140020-N | S-CA140020-N | C-CA140020-N | CA140020-N | 40 | 20 |
| | SN-CA140040-N | S-CA140040-N | C-CA140040-N | CA140040-N | 80 | 10 |
| | SN-CA140080-N | S-CA140080-N | C-CA140080-N | CA140080-N | 150 | 5 |
| | SN-CA140120-N | S-CA140120-N | C-CA140120-N | CA140120-N | 200 | 5 |
| | | | | CA140330-N | 550 | 1 |
| | | | | CA140800-N | 1300 | 1 |
| | | | | CA1401500-N | 2500 | 1 |
| Alumina Basic | | | | CA140004-B | 8 | 20 |
| | SN-CA140012-B | S-CA140012-B | C-CA140012-B | CA140012-B | 20 | 20 |
| | SN-CA140020-B | S-CA140020-B | C-CA140020-B | CA140020-B | 40 | 20 |
| | SN-CA140040-B | S-CA140040-B | C-CA140040-B | CA140040-B | 80 | 10 |
| | SN-CA140080-B | S-CA140080-B | C-CA140080-B | CA140080-B | 150 | 5 |
| | SN-CA140120-B | S-CA140120-B | C-CA140120-B | CA140120-B | 200 | 5 |
| | | | | CA140330-B | 550 | 1 |
| | | | | CA140800-B | 1300 | 1 |
| | | | | CA1401500-B | 2500 | 1 |
| Alumina Acidic | | | | CA140004-A | 8 | 20 |
| | SN-CA140012-A | S-CA140012-A | C-CA140012-A | CA140012-A | 20 | 20 |
| | SN-CA140020-A | S-CA140020-A | C-CA140020-A | CA140020-A | 40 | 20 |
| | SN-CA140040-A | S-CA140040-A | C-CA140040-A | CA140040-A | 80 | 10 |
| | SN-CA140080-A | S-CA140080-A | C-CA140080-A | CA140080-A | 150 | 5 |
| | SN-CA140120-A | S-CA140120-A | C-CA140120-A | CA140120-A | 200 | 5 |
| | | | | CA140330-A | 550 | 1 |
| | | | | CA140800-A | 1300 | 1 |
| | | | | CA1401500-A | 2500 | 1 |

Irregular Silica; Average Particle Size: 40-60 µm; Average Pore Size: 100 Å.

| Type | Claricep™ i-Series | Claricep™ s-Series | Claricep™ c-Series | Claricep™ | Silica Amount (g) | Quantity (pk) |
|--------|-----------------------|-----------------------|-----------------------|-------------|----------------------|------------------|
| C18 | | | | CO240004-0 | 4 | 20 |
| | SN-CO240012-0 | S-CO240012-0 | C-CO240012-0 | CO240012-0 | 12 | 20 |
| | SN-CO240020-0 | S-CO240020-0 | C-CO240020-0 | CO240020-0 | 20 | 20 |
| | SN-CO240040-0 | S-CO240040-0 | C-CO240040-0 | CO240040-0 | 40 | 10 |
| | SN-CO240080-0 | S-CO240080-0 | C-CO240080-0 | CO240080-0 | 80 | 5 |
| | SN-CO240120-0 | S-CO240120-0 | C-CO240120-0 | CO240120-0 | 120 | 5 |
| | | | | CO240330-0 | 330 | 1 |
| | | | | CO240800-0 | 800 | 1 |
| AQ C18 | | | | CO2401500-0 | 1500 | 1 |
| | | | | CQ240004-0 | 4 | 20 |
| | SN-CQ240012-0 | S-CQ240012-0 | C-CQ240012-0 | CQ240012-0 | 12 | 20 |
| | SN-CQ240020-0 | S-CQ240020-0 | C-CQ240020-0 | CQ240020-0 | 20 | 20 |
| | SN-CQ240040-0 | S-CQ240040-0 | C-CQ240040-0 | CQ240040-0 | 40 | 10 |
| | SN-CQ240080-0 | S-CQ240080-0 | C-CQ240080-0 | CQ240080-0 | 80 | 5 |
| | SN-CQ240120-0 | S-CQ240120-0 | C-CQ240120-0 | CQ240120-0 | 120 | 5 |
| | | | | CQ240330-0 | 330 | 1 |
| | | | CQ240800-0 | 800 | 1 | |
| | | | CQ2401500-0 | 1500 | 1 | |

Irregular Silica; Average Particle Size: 40-60 µm; Average Pore Size: 300 Å.

| Type | Claricep™ i-Series | Claricep™ s-Series | Claricep™ c-Series | Claricep™ | Silica Amount (g) | Quantity (pk) |
|------------|-----------------------|-----------------------|-----------------------|-------------|----------------------|------------------|
| C18 | | | | CO140004-T | 4 | 20 |
| | SN-CO140012-T | S-CO140012-T | C-CO140012-T | CO140012-T | 12 | 20 |
| | SN-CO140020-T | S-CO140020-T | C-CO140020-T | CO140020-T | 20 | 20 |
| | SN-CO140040-T | S-CO140040-T | C-CO140040-T | CO140040-T | 40 | 10 |
| | SN-CO140080-T | S-CO140080-T | C-CO140080-T | CO140080-T | 80 | 5 |
| | SN-CO140120-T | S-CO140120-T | C-CO140120-T | CO140120-T | 120 | 5 |
| | | | | CO140330-T | 330 | 1 |
| | | | | CO140800-T | 800 | 1 |
| Silica(CS) | | | | CO1401500-T | 1500 | 1 |
| | | | | CS140004-T | 4 | 20 |
| | SN-CS140012-T | S-CS140012-T | C-CS140012-T | CS140012-T | 12 | 20 |
| | SN-CS140020-T | S-CS140020-T | C-CS140020-T | CS140020-T | 20 | 20 |
| | SN-CS140040-T | S-CS140040-T | C-CS140040-T | CS140040-T | 40 | 10 |
| | SN-CS140080-T | S-CS140080-T | C-CS140080-T | CS140080-T | 80 | 5 |
| | SN-CS140120-T | S-CS140120-T | C-CS140120-T | CS140120-T | 120 | 5 |
| | | | | CS140330-T | 330 | 1 |
| | | | CS140800-T | 800 | 1 | |
| | | | CS1401500-T | 1500 | 1 | |



Spherical Silica; Average Particle Size: 20 µm; Pore Size: 100 Å

| Type | Claricep™ i-Series | Claricep™ s-Series | Claricep™ c-Series | Claricep™ | Silica Amount (g) | Quantity (pk) |
|------------------|-----------------------|-----------------------|-----------------------|-------------|----------------------|------------------|
| Spherical Silica | | | | SS120004-0 | 4 | 20 |
| | SN-SS120012-0 | S-SS120012-0 | C-SS120012-0 | SS120012-0 | 12 | 20 |
| | SN-SS120020-0 | S-SS120020-0 | C-SS120020-0 | SS120020-0 | 20 | 20 |
| | SN-SS120040-0 | S-SS120040-0 | C-SS120040-0 | SS120040-0 | 40 | 10 |
| | SN-SS120080-0 | S-SS120080-0 | C-SS120080-0 | SS120080-0 | 80 | 5 |
| | SN-SS120120-0 | S-SS120120-0 | C-SS120120-0 | SS120120-0 | 120 | 5 |
| | | | | SS120330-0 | 330 | 1 |
| | | | | SS120800-0 | 800 | 1 |
| | | | | SS1201500-0 | 1500 | 1 |

Spherical Silica; Average Particle Size: 20-35 µm; Pore Size: 60 Å

| Type | Claricep™ i-Series | Claricep™ s-Series | Claricep™ c-Series | Claricep™ | Silica Amount (g) | Quantity (pk) |
|------------------|-----------------------|-----------------------|-----------------------|-------------|----------------------|------------------|
| Spherical Silica | | | | SS130004-0 | 4 | 20 |
| | SN-SS130012-0 | S-SS130012-0 | C-SS130012-0 | SS130012-0 | 12 | 20 |
| | SN-SS130020-0 | S-SS130020-0 | C-SS130020-0 | SS130020-0 | 20 | 20 |
| | SN-SS130040-0 | S-SS130040-0 | C-SS130040-0 | SS130040-0 | 40 | 10 |
| | SN-SS130080-0 | S-SS130080-0 | C-SS130080-0 | SS130080-0 | 80 | 5 |
| | SN-SS130120-0 | S-SS130120-0 | C-SS130120-0 | SS130120-0 | 120 | 5 |
| | | | | SS130330-0 | 330 | 1 |
| | | | | SS130800-0 | 800 | 1 |
| | | | | SS1301500-0 | 1500 | 1 |

Spherical Silica; Average Particle Size: 20-35 µm; Pore Size: 100 Å

| Type | Claricep™ i-Series | Claricep™ s-Series | Claricep™ c-Series | Claricep™ | Silica Amount (g) | Quantity (pk) |
|----------------------------|-----------------------|-----------------------|-----------------------|------------|----------------------|------------------|
| Deactivated Silica (CM) | | | | SM230004-0 | 4 | 20 |
| | SN-SM230012-0 | S-SM230012-0 | C-SM230012-0 | SM230012-0 | 12 | 20 |
| | SN-SM230020-0 | S-SM230020-0 | C-SM230020-0 | SM230020-0 | 20 | 20 |
| | SN-SM230040-0 | S-SM230040-0 | C-SM230040-0 | SM230040-0 | 40 | 10 |
| | SN-SM230080-0 | S-SM230080-0 | C-SM230080-0 | SM230080-0 | 80 | 5 |
| | SN-SM230120-0 | S-SM230120-0 | C-SM230120-0 | SM230120-0 | 120 | 5 |
| | | | | SM230330-0 | 330 | 1 |
| | | | | SM230800-0 | 800 | 1 |
| | | | SM2301500-0 | 1500 | 1 | |
| Spherical C18 | | | | SO230004-0 | 4 | 20 |
| | SN-SO230012-0 | S-SO230012-0 | C-SO230012-0 | SO230012-0 | 12 | 20 |
| | SN-SO230020-0 | S-SO230020-0 | C-SO230020-0 | SO230020-0 | 20 | 20 |
| | SN-SO230040-0 | S-SO230040-0 | C-SO230040-0 | SO230040-0 | 40 | 10 |
| | SN-SO230080-0 | S-SO230080-0 | C-SO230080-0 | SO230080-0 | 80 | 5 |
| | SN-SO230120-0 | S-SO230120-0 | C-SO230120-0 | SO230120-0 | 120 | 5 |
| | | | | SO230330-0 | 330 | 1 |
| | | | | SO230800-0 | 800 | 1 |
| | | | SO2301500-0 | 1500 | 1 | |
| Spherical C8 | | | | S8230004-0 | 4 | 20 |
| | SN-S8230012-0 | S-S8230012-0 | C-S8230012-0 | S8230012-0 | 12 | 20 |
| | SN-S8230020-0 | S-S8230020-0 | C-S8230020-0 | S8230020-0 | 20 | 20 |
| | SN-S8230040-0 | S-S8230040-0 | C-S8230040-0 | S8230040-0 | 40 | 10 |
| | SN-S8230080-0 | S-S8230080-0 | C-S8230080-0 | S8230080-0 | 80 | 5 |
| | SN-S8230120-0 | S-S8230120-0 | C-S8230120-0 | S8230120-0 | 120 | 5 |
| | | | | S8230330-0 | 330 | 1 |
| | | | | S8230800-0 | 800 | 1 |
| | | | S82301500-0 | 1500 | 1 | |
| Spherical AQ C18 | | | | SQ230004-0 | 4 | 20 |
| | SN-SQ230012-0 | S-SQ230012-0 | C-SQ230012-0 | SQ230012-0 | 12 | 20 |
| | SN-SQ230020-0 | S-SQ230020-0 | C-SQ230020-0 | SQ230020-0 | 20 | 20 |
| | SN-SQ230040-0 | S-SQ230040-0 | C-SQ230040-0 | SQ230040-0 | 40 | 10 |
| | SN-SQ230080-0 | S-SQ230080-0 | C-SQ230080-0 | SQ230080-0 | 80 | 5 |
| | SN-SQ230120-0 | S-SQ230120-0 | C-SQ230120-0 | SQ230120-0 | 120 | 5 |
| | | | | SQ230330-0 | 330 | 1 |
| | | | | SQ230800-0 | 800 | 1 |
| | | | SQ2301500-0 | 1500 | 1 | |
| Spherical HILIC | | | | SH230004-0 | 4 | 20 |
| | SN-SH230012-0 | S-SH230012-0 | C-SH230012-0 | SH230012-0 | 12 | 20 |
| | SN-SH230020-0 | S-SH230020-0 | C-SH230020-0 | SH230020-0 | 20 | 20 |
| | SN-SH230040-0 | S-SH230040-0 | C-SH230040-0 | SH230040-0 | 40 | 10 |
| | SN-SH230080-0 | S-SH230080-0 | C-SH230080-0 | SH230080-0 | 80 | 5 |
| | SN-SH230120-0 | S-SH230120-0 | C-SH230120-0 | SH230120-0 | 120 | 5 |
| | | | | SH230330-0 | 330 | 1 |
| | | | | SH230800-0 | 800 | 1 |
| | | | SH2301500-0 | 1500 | 1 | |



Spherical Silica; Average Particle Size: 20-35 μm ; Pore Size: 100 Å

| Type | Claricep™ i-Series | Claricep™ s-Series | Claricep™ c-Series | Claricep™ | Silica Amount (g) | Quantity (pk) |
|---------------------------|-----------------------|-----------------------|-----------------------|-------------|----------------------|------------------|
| Spherical HLP | | | | SHL230004-0 | 4 | 20 |
| | SN-SHL230012-0 | S-SHL230012-0 | C-SHL230012-0 | SHL230012-0 | 12 | 20 |
| | SN-SHL230020-0 | S-SHL230020-0 | C-SHL230020-0 | SHL230020-0 | 20 | 20 |
| | SN-SHL230040-0 | S-SHL230040-0 | C-SHL230040-0 | SHL230040-0 | 40 | 10 |
| | SN-SHL230080-0 | S-SHL230080-0 | C-SHL230080-0 | SHL230080-0 | 80 | 5 |
| | SN-SHL230120-0 | S-SHL230120-0 | C-SHL230120-0 | SHL230120-0 | 120 | 5 |
| | | | | SHL230330-0 | 330 | 1 |
| | | | | SHL230800-0 | 800 | 1 |
| | | | SHL2301500-0 | 1500 | 1 | |
| Spherical NH ₂ | | | | SN230004-0 | 4 | 20 |
| | SN-SN230012-0 | S-SN230012-0 | C-SN230012-0 | SN230012-0 | 12 | 20 |
| | SN-SN230020-0 | S-SN230020-0 | C-SN230020-0 | SN230020-0 | 20 | 20 |
| | SN-SN230040-0 | S-SN230040-0 | C-SN230040-0 | SN230040-0 | 40 | 10 |
| | SN-SN230080-0 | S-SN230080-0 | C-SN230080-0 | SN230080-0 | 80 | 5 |
| | SN-SN230120-0 | S-SN230120-0 | C-SN230120-0 | SN230120-0 | 120 | 5 |
| | | | | SN230330-0 | 330 | 1 |
| | | | | SN230800-0 | 800 | 1 |
| | | | SN2301500-0 | 1500 | 1 | |
| Spherical Phenyl | | | | SP230004-0 | 4 | 20 |
| | SN-SP230012-0 | S-SP230012-0 | C-SP230012-0 | SP230012-0 | 12 | 20 |
| | SN-SP230020-0 | S-SP230020-0 | C-SP230020-0 | SP230020-0 | 20 | 20 |
| | SN-SP230040-0 | S-SP230040-0 | C-SP230040-0 | SP230040-0 | 40 | 10 |
| | SN-SP230080-0 | S-SP230080-0 | C-SP230080-0 | SP230080-0 | 80 | 5 |
| | SN-SP230120-0 | S-SP230120-0 | C-SP230120-0 | SP230120-0 | 120 | 5 |
| | | | | SP230330-0 | 330 | 1 |
| | | | | SP230800-0 | 800 | 1 |
| | | | SP2301500-0 | 1500 | 1 | |
| Spherical CN | | | | SC230004-0 | 4 | 20 |
| | SN-SC230012-0 | S-SC230012-0 | C-SC230012-0 | SC230012-0 | 12 | 20 |
| | SN-SC230020-0 | S-SC230020-0 | C-SC230020-0 | SC230020-0 | 20 | 20 |
| | SN-SC230040-0 | S-SC230040-0 | C-SC230040-0 | SC230040-0 | 40 | 10 |
| | SN-SC230080-0 | S-SC230080-0 | C-SC230080-0 | SC230080-0 | 80 | 5 |
| | SN-SC230120-0 | S-SC230120-0 | C-SC230120-0 | SC230120-0 | 120 | 5 |
| | | | | SC230330-0 | 330 | 1 |
| | | | | SC230800-0 | 800 | 1 |
| | | | SC2301500-0 | 1500 | 1 | |
| Spherical Diol | | | | SD230004-0 | 4 | 20 |
| | | | | SD230012-0 | 12 | 20 |
| | | | | SD230020-0 | 20 | 20 |
| | | | | SD230040-0 | 40 | 10 |
| | | | | SD230080-0 | 80 | 5 |
| | | | | SD230120-0 | 120 | 5 |
| | | | | SD230330-0 | 330 | 1 |
| | | | | SD230800-0 | 800 | 1 |
| | | | SD2301500-0 | 1500 | 1 | |

Average Particle Size: 50 µm; Pore Size: 60 Å

| Type | Claricep™ i-Series | Claricep™ s-Series | Claricep™ c-Series | Claricep™ | Silica Amount (g) | Quantity (pk) |
|------------------|-----------------------|-----------------------|-----------------------|-------------|----------------------|------------------|
| Spherical Silica | | | | SS150004-0 | 4 | 20 |
| | SN-SS150012-0 | S-SS150012-0 | C-SS150012-0 | SS150012-0 | 12 | 20 |
| | SN-SS150020-0 | S-SS150020-0 | C-SS150020-0 | SS150020-0 | 20 | 20 |
| | SN-SS150040-0 | S-SS150040-0 | C-SS150040-0 | SS150040-0 | 40 | 10 |
| | SN-SS150080-0 | S-SS150080-0 | C-SS150080-0 | SS150080-0 | 80 | 5 |
| | SN-SS150120-0 | S-SS150120-0 | C-SS150120-0 | SS150120-0 | 120 | 5 |
| | | | | SS150330-0 | 330 | 1 |
| | | | | SS150800-0 | 800 | 1 |
| | | | | SS1501500-0 | 1500 | 1 |
| Spherical C18 | | | | SO150004-0 | 4 | 20 |
| | SN-SO150012-0 | S-SO150012-0 | C-SO150012-0 | SO150012-0 | 12 | 20 |
| | SN-SO150020-0 | S-SO150020-0 | C-SO150020-0 | SO150020-0 | 20 | 20 |
| | SN-SO150040-0 | S-SO150040-0 | C-SO150040-0 | SO150040-0 | 40 | 10 |
| | SN-SO150080-0 | S-SO150080-0 | C-SO150080-0 | SO150080-0 | 80 | 5 |
| | SN-SO150120-0 | S-SO150120-0 | C-SO150120-0 | SO150120-0 | 120 | 5 |
| | | | | SO150330-0 | 330 | 1 |
| | | | | SO150800-0 | 800 | 1 |
| | | | | SO1501500-0 | 1500 | 1 |

Average Particle Size: 50 µm; Pore Size: 120 Å

| Type | Claricep™ i-Series | Claricep™ s-Series | Claricep™ c-Series | Claricep™ | Silica Amount (g) | Quantity (pk) |
|------------------|-----------------------|-----------------------|-----------------------|-------------|----------------------|------------------|
| Spherical Silica | | | | SS150004-A | 4 | 20 |
| | SN-SS150012-A | S-SS150012-A | C-SS150012-A | SS150012-A | 12 | 20 |
| | SN-SS150020-A | S-SS150020-A | C-SS150020-A | SS150020-A | 20 | 20 |
| | SN-SS150040-A | S-SS150040-A | C-SS150040-A | SS150040-A | 40 | 10 |
| | SN-SS150080-A | S-SS150080-A | C-SS150080-A | SS150080-A | 80 | 5 |
| | SN-SS150120-A | S-SS150120-A | C-SS150120-A | SS150120-A | 120 | 5 |
| | | | | SS150330-A | 330 | 1 |
| | | | | SS150800-A | 800 | 1 |
| | | | | SS1501500-A | 1500 | 1 |
| Spherical C18 | | | | SO150004-A | 4 | 20 |
| | SN-SO150012-A | S-SO150012-A | C-SO150012-A | SO150012-A | 12 | 20 |
| | SN-SO150020-A | S-SO150020-A | C-SO150020-A | SO150020-A | 20 | 20 |
| | SN-SO150040-A | S-SO150040-A | C-SO150040-A | SO150040-A | 40 | 10 |
| | SN-SO150080-A | S-SO150080-A | C-SO150080-A | SO150080-A | 80 | 5 |
| | SN-SO150120-A | S-SO150120-A | C-SO150120-A | SO150120-A | 120 | 5 |
| | | | | SO150330-A | 330 | 1 |
| | | | | SO150800-A | 800 | 1 |
| | | | | SO1501500-A | 1500 | 1 |



Claricep™ Bulk Media Ordering Information



Bulk Silica Gel Media from Bonna-Agela Technologies (Average Pore Size: 60 Å)

| Part. No. | Grade | Particle Size | Pack |
|------------|-------|---------------|--------|
| CS605001-P | P | 40-60 µm | 1 kg |
| CS605002-P | | | 2.5 kg |
| CS605005-P | | | 5 kg |
| CS605025-P | | | 25 kg |
| CS605001-G | G | | 1 kg |
| CS605002-G | | | 2.5 kg |
| CS605005-G | | | 5 kg |
| CS605025-G | | | 25 kg |
| CS608001-P | P | 70-90 µm | 1 kg |
| CS608002-P | | | 2.5 kg |
| CS608005-P | | | 5 kg |
| CS608025-P | | | 25 kg |
| CS608001-G | G | | 1 kg |
| CS608002-G | | | 2.5 kg |
| CS608005-G | | | 5 kg |
| CS608025-G | | | 25 kg |

P: Reagent Grade; G: Technical Grade

Irregular Silica; Average Particle Size: 40-60 µm;

| Type | New Part. No. | Pore Size (Å) | Pack (g) |
|----------------------------------|---------------|---------------|----------|
| Claricep Deactivated Silica (CM) | FCM140100-0 | 60 | 100 |
| | FCM1401000-0 | | 1000 |
| | FCM1405000-0 | | 5000 |
| Claricep C18 | FCO140100-0 | 100 | 100 |
| | FCO1401000-0 | | 1000 |
| | FCO1405000-0 | | 5000 |
| | FCO240100-0 | 300 | 100 |
| | FCO2401000-0 | | 1000 |
| | FCO2405000-0 | | 5000 |
| | FCO140100-T | 300 | 100 |
| | FCO1401000-T | | 1000 |
| | FCO1405000-T | | 5000 |

| Type | New Part. No. | Pore Size (Å) | Pack (g) |
|--------------------------|---------------|---------------|----------|
| Claricep AQ C18 | FCQ140100-0 | 60 | 100 |
| | FCQ1401000-0 | | 1000 |
| | FCQ1405000-0 | | 5000 |
| Claricep HILIC | FCH140100-0 | | 100 |
| | FCH1401000-0 | | 1000 |
| | FCH1405000-0 | | 5000 |
| Claricep NH ₂ | FCN140100-0 | | 100 |
| | FCN1401000-0 | | 1000 |
| | FCN1405000-0 | | 5000 |
| Claricep C8 | FC8140100-0 | | 100 |
| | FC81401000-0 | | 1000 |
| | FC81405000-0 | | 5000 |
| Claricep SAX | FCS140100-AX | | 100 |
| | FCS1401000-AX | | 1000 |
| | FCS1405000-AX | | 5000 |
| Claricep SCX | FCS140100-CX | 100 | |
| | FCS1401000-CX | 1000 | |
| | FCS1405000-CX | 5000 | |

Irregular Alumina; Average Particle Size: 100-200 mesh;

| Type | New Part. No. | Pore Size (Å) | Pack (g) |
|--------------------------|---------------|---------------|----------|
| Claricep Alumina Neutral | FCA140100-N | / | 100 |
| | FCA1401000-N | | 1000 |
| | FCA1405000-N | | 5000 |
| Claricep Alumina Basic | FCA140100-B | | 100 |
| | FCA1401000-B | | 1000 |
| | FCA1405000-B | | 5000 |
| Claricep Alumina Acidic | FCA140100-A | | 100 |
| | FCA1401000-A | | 1000 |
| | FCA1405000-A | | 5000 |

Spherical Silica; Average particle size: 20 µm: Average pore size: 100 Å.

| Type | New Part. No. | Pack (g) |
|--|---------------|----------|
| Claricep Spherical Silica Standard Silica | FSS120100-0 | 100 |
| | FSS1201000-0 | 1000 |
| | FSS1205000-0 | 5000 |

Spherical Silica; Average particle size: 20-35 µm: Average pore size: 60 Å.

| Type | New Part. No. | Pack (g) |
|---|---------------|----------|
| Claricep Spherical Silica (CS) Standard Silica | FSS130100-0 | 100 |
| | FSS1301000-0 | 1000 |
| | FSS1305000-0 | 5000 |



Spherical Silica; Average particle size: 20-35 μm : Average pore size: 100 Å.

| Type | New Part. No. | Pack (g) |
|--|---------------|----------|
| Claricep Spherical Silica (CM) Deactivated Silica | FSM230100-0 | 100 |
| | FSM2301000-0 | 1000 |
| | FSM2305000-0 | 5000 |
| Claricep Spherical C18 | FSO230100-0 | 100 |
| | FSO2301000-0 | 1000 |
| | FSO2305000-0 | 5000 |
| Claricep Spherical AQ C18 | FSQ230100-0 | 100 |
| | FSQ2301000-0 | 1000 |
| | FSQ2305000-0 | 5000 |
| Claricep Spherical HLP | FSHL230100-0 | 100 |
| | FSHL2301000-0 | 1000 |
| | FSHL2305000-0 | 5000 |
| Claricep Spherical HILIC | FSH230100-0 | 100 |
| | FSH2301000-0 | 1000 |
| | FSH2305000-0 | 5000 |
| Claricep Spherical NH ₂ | FSN230100-0 | 100 |
| | FSN2301000-0 | 1000 |
| | FSN2305000-0 | 5000 |
| Claricep Spherical Phenyl | FSP230100-0 | 100 |
| | FSP2301000-0 | 1000 |
| | FSP2305000-0 | 5000 |

044

Purification Products

Spherical Silica; Average particle size: 50 μm : Average pore size: 60 Å.

| Type | New Part. No. | Pack (g) |
|------------------------|---------------|----------|
| Claricep Spherical C18 | FSO150100-0 | 100 |
| | FSO1501000-0 | 1000 |
| | FSO1505000-0 | 5000 |

Spherical Silica; Average particle size: 50 μm : Average pore size: 120 Å.

| Type | New Part. No. | Pack (g) |
|------------------------|---------------|----------|
| Claricep Spherical C18 | FSO150100-A | 100 |
| | FSO1501000-A | 1000 |
| | FSO1505000-A | 5000 |

Cross-reference for Columns

| Bonna-Agela | ISCO | UCT | Luknova | Biotage | Analogix | Supelco | Grace | Silica (Weight) |
|-------------|-------------|--------------|----------|------------------|----------|---------|---------|-----------------|
| CS140004-0 | 69-2203-304 | FUSIL12S-20 | FC003004 | | 1368-8 | | 8618502 | 4 g |
| CS140012-0 | 69-2203-312 | FUSIL12M-20 | FC003012 | FSKO-1107-0010 | 1369-7 | | 8618522 | 12 g |
| CS140020-0 | 69-2203-324 | | FC003025 | FSKO - 1107-0025 | 1404-6 | | | 20 g |
| CS140040-0 | 69-2203-340 | FUSIL40S-12 | FC003040 | FSKO-1107-0050 | 1281-6 | 97704-u | 8618521 | 40 g |
| CS140080-0 | 69-2203-380 | FULSIL40M-12 | FC003080 | | 1213-6 | | 8618520 | 80 g |
| CS140120-0 | 69-2203-320 | FUSIL40L-12 | FC003120 | | 1217-4 | 97706-u | 8618509 | 150 g |
| CS140330-0 | 69-2203-330 | FUSIL65M-6 | FC003330 | FSKO - 1107-0340 | 1219-3 | 97708-u | 8618525 | 330 g |
| CS140800-0 | 69-2203-275 | | | | | | | 800 g |
| CS1401500-0 | 69-2203-277 | | | | | | | 1500 g |

| Specification | 4g | 12g | 20g | 25g | 40g | 45g | 80g | 120g | 220g | 330g |
|-----------------------------|----------------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
| Cat. No | CS140004-0 | CS140012-0 | CS140020-0 | CS140025-0 | CS140040-0 | CS140045-0 | CS140080-0 | CS140120-0 | CS140220-0 | CS140330-0 |
| Sample loading ¹ | 0.01-0.02g | 0.03-0.06g | 0.05-0.1g | 0.06-0.12g | 0.1-0.2g | 0.11-0.22g | 0.2-0.4g | 0.3-0.6g | 0.5-1.0g | 0.75-1.5g |
| Sample loading ² | 0.02-0.08g | 0.06-0.24g | 0.1-0.4g | 0.12-0.5g | 0.2-0.8g | 0.22-0.9g | 0.4-1.6g | 0.6-2.4g | 1.0-4.0g | 1.5-6.0g |
| Sample loading ³ | 0.08-0.4g | 0.24-1.2g | 0.4-2.0g | 0.5-2.5g | 0.8g-4.0g | 0.9-4.5g | 1.6-8.0g | 2.4-12.0g | 4.0-22.0g | 6.0-33.0g |
| Column Volume | 8mL | 24mL | 40mL | 45mL | 80mL | 85mL | 160mL | 240mL | 400mL | 600mL |
| Min flow rate | 5mL/min | 8mL/min | 10mL/min | 12mL/min | 20mL/min | 20mL/min | 25mL/min | 35mL/min | 45mL/min | 50mL/min |
| Max flow rate | 18mL/min | 20mL/min | 25mL/min | 22mL/min | 40mL/min | 35mL/min | 50mL/min | 80mL/min | 90mL/min | 100mL/min |
| Pressure | Max. pressure 180psi | | | | | | | | | |
| Length | 7.0cm | 9.0cm | 11.0cm | 19.5cm | 14.0cm | 24.0cm | 21.0cm | 23.5cm | 15.7cm | 23.5cm |
| ID | 1.5cm | 2.1cm | 2.6cm | 2.1cm | 3.1cm | 2.6cm | 3.2cm | 4.1cm | 5.7cm | 5.7cm |
| ID/length | 4.7 | 4.3 | 4.2 | 9.3 | 4.5 | 9.2 | 6.6 | 5.7 | 2.8 | 4.1 |

* Sample loading: $\Delta CV=1/Rf1-1/Rf2$; Matrix: silica: 40-60 μm

Cat.No*: "CS" represent Silica

Sample loading¹: $\Delta CV=1$

Sample loading²: $\Delta CV=2$

Sample loading³: $\Delta CV=6$

Other Purification Products

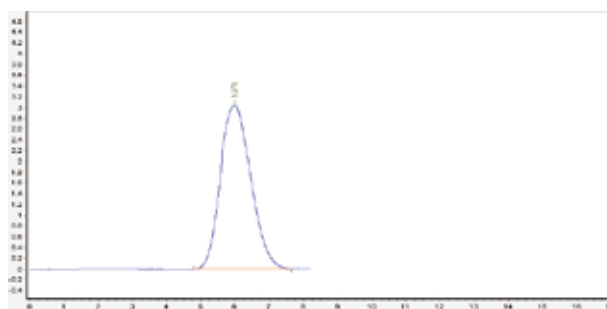
Glass Columns

The glass chromatography columns manufactured by Bonna-Agela Technologies are in an enhanced format of column housing. A complete line of high quality sorbents provides unique or better separation performance to meet customers' needs. The unique CM silica and HILIC bonded silica extend the application of normal phase to the separation of very polar compounds.



Features and Benefits

- Good pressure tolerance: can be used at higher flow rate to speed up separation.
- Broad chemical compatibility: convenient for broad applications.
- Polymer coated glass: providing extra safety.
- Special column inlet design improves performance, peak shape and efficiency.
- Fast solid sample loading.



Sample: Dimethyl-o-phthalate
 Glass Column: 26×310mm packed with
 40-60 μm irregular C18 (G31026-1)
 Mobile Phase: MeOH: water = 85:15

Specification Data Sheet

| Part. No. | Pressure (bar) | Column ID(mm) | Column Length(mm) | Packed Silica weight 40-60μm(g) | Loading weight (g) |
|-----------|----------------|---------------|-------------------|---------------------------------|--------------------|
| G31015-1 | 40 | 15 | 310 | 45 | 0.45--4.5 |
| G46015-1 | 40 | 15 | 460 | 70 | 0.70--7.0 |
| G92015-1 | 40 | 15 | 920 | 140 | 1.40--14.0 |
| G31026-1 | 40 | 26 | 310 | 130 | 1.30--13.0 |
| G46026-1 | 40 | 26 | 460 | 200 | 2.00--20.0 |
| G92026-1 | 40 | 26 | 920 | 400 | 4.00--40.0 |
| G31036-1 | 30 | 36 | 310 | 240 | 2.40--24.0 |
| G46036-1 | 30 | 36 | 460 | 350 | 3.50--35.0 |
| G92036-1 | 30 | 36 | 920 | 700 | 7.00--70.0 |
| G31049-1 | 20 | 49 | 310 | 450 | 4.50--45.0 |
| G46049-1 | 20 | 49 | 460 | 650 | 6.50--65.0 |
| G92049-1 | 20 | 49 | 920 | 1300 | 13.0--130.0 |
| G31070-1 | 10 | 70 | 310 | 880 | 8.80--88.00 |
| G46070-1 | 10 | 70 | 460 | 1300 | 13.0--130.0 |
| G92070-1 | 10 | 70 | 920 | 2600 | 26.0--260.0 |
| G31000-1 | 10 | 100 | 310 | 1900 | 19.0--190.0 |
| G46000-1 | 10 | 100 | 460 | 2750 | 27.5--275.0 |
| G92000-1 | 10 | 100 | 920 | 5500 | 55.5--550.0 |

Thin Layer Chromatography (TLC)

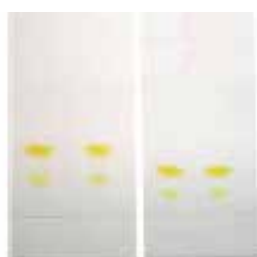
Bonna-Agela carries a full line of thin layer chromatography (TLC) plates with a variety of chemistries. They are flexible or glass backed for easy use. When matching with Claricep™ flash cartridges, the TLC plates serve as a tool for reaction monitoring and method development based on Rf values for flash chromatography.



Traditional Silica with a Variety of Selectivity Match

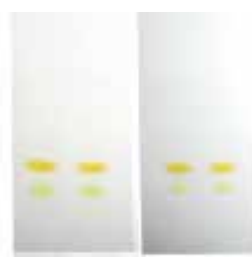
We offer traditional bare silica based products with the best performance to cost value. M series feature an equivalent selectivity to popular EMD plates, while G series have a very good match with most of flash chromatography columns.

1-Comparison of G-series with EMD plates



Agela Merck

2-Comparison of M-series with EMD plates



Agala Merck

TLC Plate Ordering Information

| TLC Plate Type | Part. No. | Specification/mm | Package (pcs/pk) |
|----------------|---------------|---|------------------|
| Silica | T-CS7525-0 | 25×75 mm, pH=7.0, G, glass back | 50 |
| | T-CSF7525-0 | 25×75 mm, pH=7.0, GF254, glass back | 50 |
| | T-CS7525-M | 25×75 mm, pH=5.0 (equivalent to EMD) M, glass back | 50 |
| | T-CSF7525-M | 25×75 mm, pH=5.0 (equivalent to EMD) MF254, glass back | 50 |
| | T-CS10050-M | 50×100 mm pH=5.0 (equivalent to EMD) M, glass back | 40 |
| | T-CSF10050-M | 50×100 mm pH=5.0 (equivalent to EMD) MF254, glass back | 40 |
| | T-CS100100-M | 100×100 mm, pH=5.0 (equivalent to EMD) M, glass back | 20 |
| | T-CSF100100-M | 100×100 mm, pH=5.0 (equivalent to EMD) MF254, glass back | 20 |
| | T-CS200200-0 | 200×200 mm, G, glass back | 10 |
| | T-CSF200200-0 | 200×200 mm, GF254, glass back | 10 |
| | T-CS200200-M | 200×200 mm, pH=5.0 (equivalent to EMD) M, glass back | 10 |
| | T-CSF200200-M | 200×200 mm, pH=5.0 (equivalent to EMD) MF254, glass back | 10 |
| | T-CS200200-A | 200×200 mm, pH=5.0 (equivalent to EMD) M, aluminum back | 20 |
| | T-CSF200200-A | 200×200 mm, pH=5.0 (equivalent to EMD) MF254, aluminum back | 20 |

All silica: Particle Size 10-15 μm; Surface Area 480-500 m²/g; Pore Size 60 Å; M, MF: pH=5.0; G, GF, pH=7.0;
Layer thickness: 200 μm



Quick Work-up Cartridges

They are specially designed to replace the conventional aqueous work up procedure such as liquid-liquid extraction as a part of organic synthesis and purification. They are used as a filter-through method to quickly work up reaction mixtures or purification.

How to use

1. A synthetic mixture is directly injected onto a column.
2. Chose a solvent which is not immiscible with water to rinse the desired compounds out of column.
3. Concentrate the collected solution.
4. Add the concentrated mixture to a flash column or a HPLC column for further separation.



Quick Work-up Cartridge Ordering Information

| Part. No. | Phase | Specification | Quantity (PK) |
|-----------|------------------------|------------------|---------------|
| QW9001 | C18 | 1 mL; End-capped | 50 |
| QW9003 | C18 | 3 mL; End-capped | 50 |
| QW9006 | C18 | 6 mL | 30 |
| QWC001 | Celite | 1 mL; End-capped | 50 |
| QWC003 | Celite | 3 mL; End-capped | 50 |
| QWC006 | Celite | 6 mL | 30 |
| QWH001 | HILIC | 1 mL; End-capped | 50 |
| QWH003 | HILIC | 3 mL; End-capped | 50 |
| QWH006 | HILIC | 6 mL | 30 |
| QWS001 | SCX | 1 mL; End-capped | 50 |
| QWS003 | SCX | 3 mL; End-capped | 50 |
| QWS006 | SCX | 6 mL | 30 |
| QWA001 | SAX | 1 mL; End-capped | 50 |
| QWA003 | SAX | 3 mL; End-capped | 50 |
| QWA006 | SAX | 6 mL | 30 |
| QWP001 | PEP | 1 mL; End-capped | 50 |
| QWP003 | PEP | 3 mL; End-capped | 50 |
| QWP006 | PEP | 6 mL | 30 |
| QWM001 | Catalyst/metal removal | 1 mL; End-capped | 50 |
| QWM003 | Catalyst/metal removal | 3 mL; End-capped | 50 |
| QWM006 | Catalyst/metal removal | 6 mL | 30 |

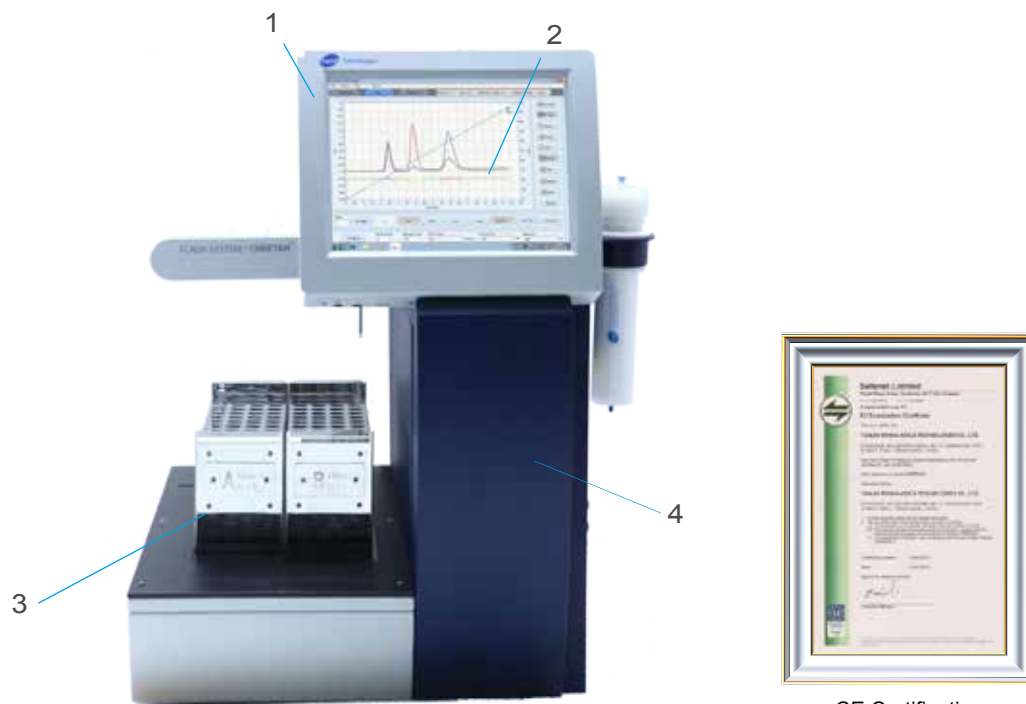
Purification System

CHEETAH® MP Series Purification Systems

Bonna-Agela Technologies introduce CHEETAH® MP Series preparative chromatography system to significantly improve the throughput of purification in synthetic and natural product chemistry. CHEETAH® MP Series are designed to automate purification process with online peak detection and fraction collection. The systems are the revolutionized replacement of traditional column chromatography.

Features

- ◆ User-friendly interfaces
- ◆ Binary or quaternary gradient elution
- ◆ Built-in method conversion from TLC Rf values to column gradient
- ◆ Fraction management: All/Volume, Knee Point, Slope, Threshold or Time Windows



CE Certification

1. Centered control of purification with 12.1 inch touch screen computer
2. Dual UV wavelength detection and peak-to-tube tracking
3. Oxidized coating to avoid solvent corrosion
4. Integrated design for convenient bench-top operation



Specifications

| CHEETAH® MP | | | | |
|-----------------------|--|------------|---|------------|
| MP 200 | FS-9200 | FS-9204T | FS-9200S | FS-9204S |
| Solvent Delivery Pump | Binary | Quaternary | Binary | Quaternary |
| | CHEETAH® MP 200: Max.Flow Rate: 200 mL/min; Max. pressure: 200 psi | | | |
| Solvent Management | Leakage alarm. | | | |
| Gradient | Linear or step or linear/step elution with on-the-fly editing feature | | | |
| Detector | Wavelength Range: 200-400 nm; Wavelength Accuracy: ±1 nm; Absorbance Range: ≤5 AU | | Wavelength Range: 200-800 nm; Wavelength Accuracy: ±1 nm; Absorbance Range: ≤5 AU | |
| | UV-Vis / Dual variable wavelength detector(VWD) - (Standard) Compatible with other detectors such as ELSD and RI | | | |
| Light Source | Deuterium Lamp (200-400 nm) and Deuterium-tungsten lamp (200-800 nm) | | | |
| System Control | CHEETAH® purification software: Integral instrument control, data acquisition and fraction collection management; Windows 7 operating platform. Computer: 4 GB memory, 12.1 inch touch screen, Processor: 1.8 GHz | | | |
| Collector | 13, 15, 18 or 25 mm tube; and 100 mL tube rack is optional round-bottomed flask; self defined coordinates for customized collection. No-Limit collection volume; Large volume collection up to 1L. | | | |
| Dimensions | 59.33 × 60.2 × 69.52 cm | | | |
| Weight | 60 kg | | | |
| Power | 110 V /220 V, 50/60 Hz, 360 W | | | |
| Certifications | CE Certified | | | |



Column Holder



Injector

Functions

| Description | |
|-----------------------|---|
| Co-solvent | In Quaternary system, a co-solvent can be added at any time during the run (as a fixed or user set percentage) to avoid sample precipitation during purification. |
| Column History | In built feature in method tab to select column size and stationary phase according to method requirement, this feature enables in all column format like pre -pack, empty or glass columns of Bonna-Agela and other manufacturers. |
| System protection | Alarm will be triggered if pressure exceeds maximum setting to protect the system. |
| Multi Detector Option | System has a facility to attach with second detector externally like ELSD (Evaporative Light-scattering), RI(Refractive Index). |
| Compatibility | Compatible with any flash columns available in the market such as disposable and glass columns from 4 g to 1500 g pre-pack or empty columns depending on sample nature and stationary phase. Cheetah [®] MP is compatible with maximum stationary phases from Bonna-Agela or other manufacturer like Standard Silica, Deactivated Silica, Reverse Phase (C18), HILIC, NH ₂ , C8, SAX, SCX, Alumina Neutral, Alumina Basic, Alumina Acidic, AQ C18, Spherical Silica with particle size of 40 - 60 µm and 20 - 35 µm with customize scalability. |
| System Washing | Washing Step can be added during gradient setting for automated system washing at the end of run according to column specifications (like Pre-pack, Reusable or Glass columns). |
| Loading Capacity | Delivers a wide range of sample loading facility from 0.1 g to 80 g (Depending on the sample nature & Stationary phase) |
| Parameters Editing | Maximum parameters can be edited during run like Flow rate, Collection volume, Collection or fractionation mode, Solvent composition. |
| Initial Waste | This function is used to directly discharge any left-over fluid from previous experiment to the first test tube known waste to avoid any carryover of fluid or cross contamination to concurrent experiment. |



CHEETAH® HP Series Prep HPLC

CHEETAH® HP 100 is an automated high pressure preparative LC system from Bonna-Agela Technologies. It is an integrated system featuring binary gradient pump, UV detector and fraction collector. The maximum backpressure of the system is 20 MPa, and the max flow rate is 100 mL/min. The design of the system emphasized small footprint and simple operation. It is a solution to purify complex sample employing high-solutions columns packed with small particle media.

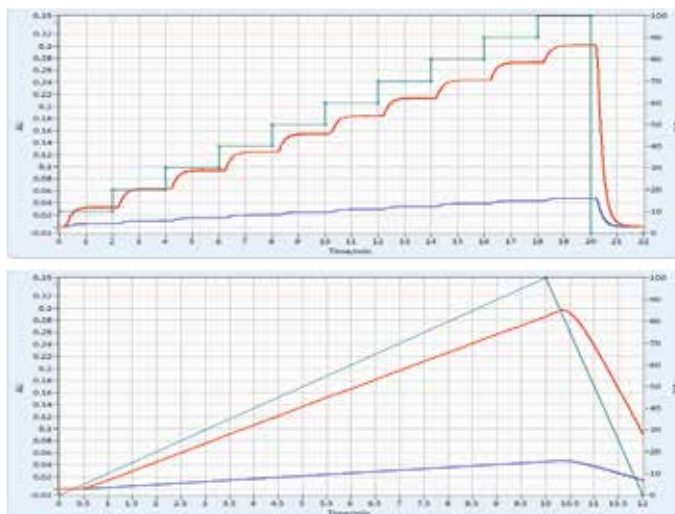
Main Features

- ◆ One point control via touch screen PC
- ◆ User friendly interfaces
- ◆ Dual wavelength detection/monitor via UV detector, ELSD and RI detector is optional
- ◆ Intelligent fraction collecting: All/Volume, manual, slope/threshold and time windows.

Applications

- ◆ Purification of synthetic compounds
- ◆ Purification of complex mixture of synthetic compounds
- ◆ Isolation of biopolymers such as peptides and nucleotides
- ◆ Separation of combichem arrays
- ◆ Purification of natural products

Pump



- ◆ Cam compensation produces low delivery pulse
- ◆ Multiple-point calibration ensure accurate flow delivery
- ◆ Floating design of plunger extends lifetime of seals

Injection Valve

- ◆ 6 port manual valve
- ◆ 2 mL Loop (Standard), 1-10 mL is optional
- ◆ Max Presssure 5000 psi, 1/16" tubing



Specifications

| CHEETAH® HP 100 | | |
|-----------------------|--|--|
| Cat. No | HS-1000 | HS-1000S |
| Solvent Delivery Pump | Binary Flow Rate: 1 -100 mL/min; Max. pressure: 20 MPa Increment:1 mL/min | |
| Detector | Wavelength Range: 200-400 nm Wavelength Accuracy: ±1 nm; Absorbance Range: ≤5 AU | Wavelength Range: 200-800 nm Wavelength Accuracy: ±1 nm; Absorbance Range: ≤5 AU |
| Control system | RAM 4 GB, Screen 12.1' | |
| Collection container | 13, 15, 18 or 25 mm tube; and 100 mL round-bottomed flask customized test tube rack is available. No-Limit collection volume; Large volume collection is optional. | |
| Collection mode | By peak, Volume/All, Window, Manual. | |
| Safety | Leakage alarm. | |

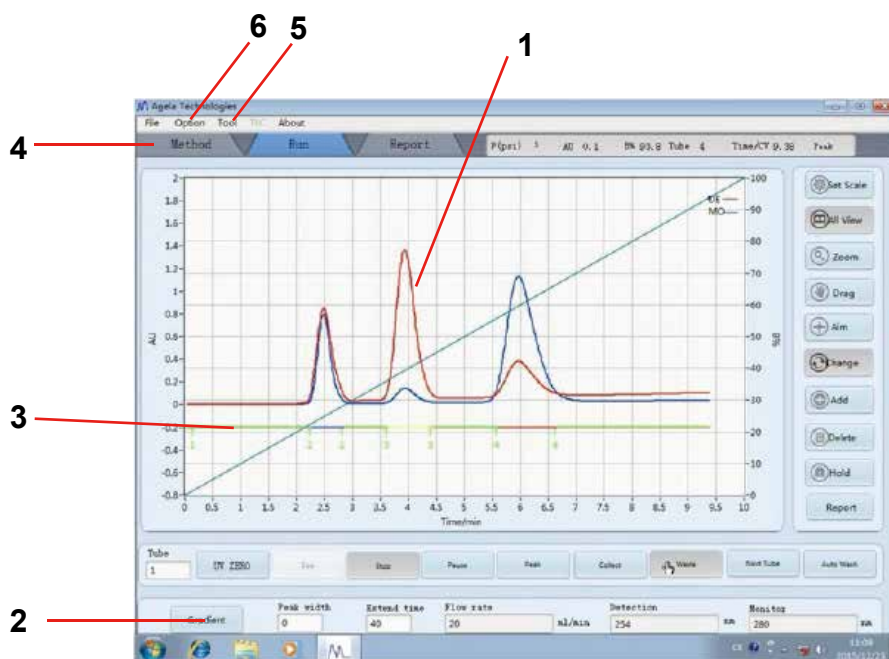


CE Certification



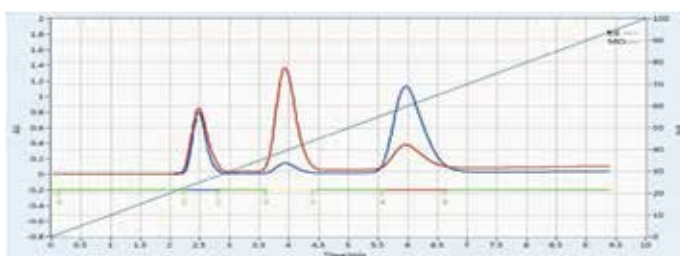
CHEETAH[®] Software

Applicable to binary purification system



Purification Products 054

1. Dual-wavelength



The fraction can be collected under detection wavelength or monitoring wavelength. The difference of absorbance from the two channels can also be calculated.

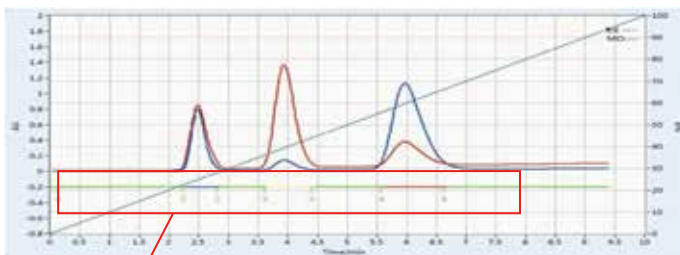
2. Rapid Modification of Gradient Curve On Time

During a run, by a simple click, users can easily edit the running gradient profile.

| Line | Start | Solvent % | End | Min. Duration |
|------|-------|-----------|------|---------------|
| Equ | 0 | 0 | 5 | |
| 1 | 0.0 | 100.0 | 10.0 | |
| | | | | |
| | | | | |

Buttons: Add, Insert, Delete, Mod

3. Rapid seeking for the components



Collection tube number display on line.

4. Various modes for collection and detection



Fraction can be collected through different way.

5. Direct Control of Collector by User

Definition of collection coordinates are accessible to users. Besides the default tubes, user can define coordinated for customized applications.



6. RI/ELSD

Built-in interface for RI and ELSD detectors for mass-type detection of compounds such as polysaccharides. The collection through a RI/ELSD detector is available.





FLEXA™ Series Modular Purification Components

Bonna-Agela Technologies offer a line of modular components for LC purification. The FLEXA™ series provide flexibility of choosing a customized system based on user's specification.

The option includes a variety of stand-alone pumps, detectors, autosampler, collector and column switcher.



FLEXA™ Series Pump

- ◆ Different flow range options;
- ◆ Pressure displaying online;
- ◆ Over-pressure alarm guarantees safety operation.



MP Series Pump

| Cat. No | FL-GP 200 |
|--------------------|--------------|
| Max Pressure | 200 psi |
| Pump Max Flow Rate | 1-200 mL/min |
| Flow Precision | ±2 % |
| Gradient Precision | ±1 % |
| Gradient Type | Binary |
| Gradient Range | 0-100 % |

HP Series Pump

| Cat. No | HP-Q-P010 | HP-Q-P050 | HP-Q-P100 |
|--------------------|----------------------|----------------------|----------------------|
| Max Pressure | 42 Mpa | 30 Mpa | 20 Mpa |
| Pump Max Flow Rate | 10 mL/min | 50 mL/min | 100 mL/min |
| Flow Precision | ±0.5 % | ±1 % | ±1 % |
| Gradient Type | Binary (Double pump) | Binary (Double pump) | Binary (Double pump) |
| Application | Analytical | Preparation | Preparation |

FLEXA™ Series Detectors

UV and UV-Vis

- ◆ Different Wavelength Options
- ◆ Auto-Zero and Attenuation Function



MP Series Detector

| | UV Detector | UV-Vis Variable Wavelength Detector |
|--------------|-----------------|-------------------------------------|
| Cat. No | FL-UV2040 | FL-UV2080 |
| Wavelength | 200-400 nm | 200-800 nm |
| Channel | Dual-wavelength | Dual-wavelength |
| Range | ≤5 AU | ≤5 AU |
| Light Source | Deuterium lamp | Deuterium lamp Tungsten lamp |
| Auto Zero | By Digital | By Digital |
| Screen | 320×240 Pixels | 320×240 Pixels |

HP Series Detector

| | UV Detector | UV-Vis Variable Wavelength Detector |
|--------------|-----------------|-------------------------------------|
| Cat. No | HP-Q-UV100 | HP-Q-UV100S |
| Wavelength | 200-400 nm | 200-800 nm |
| Channel | Dual-wavelength | Dual-wavelength |
| Range | ≤5 AU | ≤5 AU |
| Light Source | Deuterium lamp | Deuterium lamp Tungsten lamp |
| Auto Zero | By Digital | By Digital |
| Screen | 320×240 Pixels | 320×240 Pixels |

ELSD

The Evaporative Light Scattering Detector ZAM 4000 is an universal detector for HPLC. It is used to analyze components which do not have UV absorption, cannot be separated with an isocratic solvent and must use a gradient elution, which cannot be used with a refractive index detector.



| Cat. No | HP-ELSD4000 |
|-------------------------------------|--------------------------------|
| Light source | Tungsten lamp, photomultiplier |
| Temperature | Room temp. ~ 85 °C |
| Flow Rate for Atomizing Carrier Gas | 1.7 L/min |
| Required Pressure | 3~5 bar |
| Power-saving Mode | programmed shut off |



RI

The RI 2000 Differential Refractive Index Detector series offers the sensitivity, stability and reproducibility required for optimal RI detection.

The thermal isolated optic with a countercurrent heat exchanger and with its programmable temperature control, results in an extremely stable baseline and an optimal Signal / Noise ratio.



| Cat. No | HP-RI2000P |
|---------------------------------|--------------------------------|
| Flow range | 1.0-50.0 mL/min |
| Flow Cell Volume | 7 μ L/5 $^{\circ}$ C angle |
| Pressure Tolerance of Flow Cell | 6 kg/cm ² |
| Dead Volume | Into cell 88 or 353 μ L |
| Liner Range | 0-20000 μ RIU |
| Noise | 10 \times 10 ⁻⁸ |

FLEXA™ Series Fraction Collector

- ◆ Stand-alone operation
- ◆ Time/Volume based triggering
- ◆ Choice of forced collection or waste vending
- ◆ Highlighted collecting position
- ◆ Customized definition of coordinates



| Cat. No | FL-C100 | FL-C100B |
|--------------------------|---|------------|
| Compatibility | MP series | HP series |
| Max Flow Rate | 200 mL/min | 100 mL/min |
| Collecting Configuration | Preset for 13 mm, 15 mm, 18 mm and 25 mm tubes; self-configuration program available test tube. | |
| Communication Port | RS 232 | RS 232 |
| Collection Mode | By peak (threshold), volume; Forced collection and forced waste | |

ATS Series Auto-sampler

- ◆ Auto wash
- ◆ Continuous sampling (up to a thousand times)
- ◆ Excessive large sampling volume
- ◆ Good compatibility (Compatible with the purification system from most of the manufactures in the market)

ATS Auto-Sampler is an efficient product for sample injection, which provides fast and reliable purification by connected with a prep LC system.



Compatible with MP series

| Cat. No | ATS-051-M10 | ATS-051-M25 |
|--------------------|------------------|------------------|
| Single Sample Size | 1-10 mL | 5-25 mL |
| Sample Loop | 5 mL | 20 mL |
| Pipeline ID | 1/8 inch | 1/8 inch |
| Sample Channel | 5 | 5 |
| Cleaning Channel | Automatic/Manual | Automatic/Manual |
| Communication Port | RS-232 | RS-232 |

Compatible with HP series

| Cat. No | ATS-051-H10 | ATS-051-H25 |
|--------------------|------------------|------------------|
| Single Sample Size | 1-10 mL | 5-25 mL |
| Sample Loop | 2 mL | 20 mL |
| Pipeline ID | 1/16 inch | 1/16 inch |
| Sample Channel | 5 | 5 |
| Cleaning Channel | Automatic/Manual | Automatic/Manual |
| Communication Port | RS-232 | RS-232 |



FLEXA™ Series Fraction Collector

ACQ-06 column switcher allows chemists to switch automatically from one column to another, without evaporating solvents. It also offers multi-stationary phases for a complete chromatography solution. Six channels are available and could be programmed through software.

- ◆ Time Saving
Start a new run by switching to a new column
- ◆ Efficient Purification
Further purification can be achieved through tandemed columns
- ◆ Good Compatibility
Compatible with the purification system from most of the manufacturers in the market



Cat. No: ACQ-06

Indicator Lamps
Show the status of the channels

Column Support
Suitable for columns of different specifications column tandem

Standard Adaptor
Compatible with flash columns from other manufacturers

Channel Switcher
Avoid cross contamination

Column Oven



| Cat. No | CT-100-T | CC-M-500 | MODEL9340 |
|--------------------------|--------------------------------|--------------------------------|---|
| Compatibility | Ambient-100°C | 4-80°C | Ambient-100°C |
| Max Flow Rate | ±0.1°C | ±0.1°C | ±0.1°C |
| Collecting Configuration | ±0.1°C | ±0.1°C | ±0.1°C |
| Communication Port | 4.6 × 250 mm, Max 2 columns | 4.6 × 250 mm, Max 2 columns | One of 4.6 × 250 mm analytical column, and 30 × 250 mm preparation column |
| Collection Mode | Analytical | Analytical | Preparation |



LS-Prep Large Volume Purification System

- ◆ Flexible option for semi-preparative and large volume sample purification;
- ◆ Featured system is configured with binary gradient pumps, dual UV-Vis detector and automatic injection pump, no limit sample collection through valve switcher;
- ◆ 1L pump is available to satisfy purification requirement from grams to hundreds grams.



062

Purification Products

Featured Optional combination

| Pump | Detector | Sample Loading | Collection |
|--|--|-----------------|-------------------------|
| Flow rate: 10-1000 mL/min Max pressure 10Mpa (Optional: 1mL/min) | UV-Vis detector (200-800nm), ELSD, RI detector is optional | Autosample pump | Auto fraction collector |

LS-Prep Series Pump

- ◆ Unique floating piston design to ensure longer seal life;
- ◆ Low pulsation due to electronic damping technology;
- ◆ Anti-particle contamination;
- ◆ Solvent tolerance with RP and HP phase system solvent.



| Cat.No | HP-Q-P300 | HP-Q-P600 | HP-Q-P1000 |
|--------------------|--------------|--------------|---------------|
| Max | 10 MPa | 10 MPa | 5 MPa |
| Pump Head | 316L | 316L | 316L |
| Flow Rate | ≤ 300 mL/min | ≤ 600 mL/min | ≤ 1000 mL/min |
| Flow Precision | ±2 % | ±2 % | ±3 % |
| Gradient Precision | ±1 % | ±1 % | ±1 % |

LS-Prep Series Fraction Collector

XY axis two-dimension collector

- ◆ Stable electronic control technology supports high precision custom coordinate;
- ◆ S-type collector with adjustable software suit variety of collection container, such as conical flask, flask, beaker, test tube;
- ◆ Easily switch between waste and collection through multi-channel design.



| Cat. No | FL-C500 |
|--------------------------|---|
| Max Flow Rate | 1000 mL/min |
| Collecting Configuration | Preset for 13 mm, 15 mm, 18 mm, 25 mm and 1000 mm tubes |
| Communication Port | RS 232 |
| Collection Mode | By peak (threshold), volume; Forced collection and forced waste |



LC-10F High Performance Liquid Chromatography

LC-10F HPLC system apply the Electrical Dump Control technique to minimize the pulsation, and ensure the sensitivity. High flow rate precision are achieved through a multi-point calibration curve; Dual-channel design for dual wavelength provide excellent detection detection.

Specification

| Cat. No | LC-10F |
|--------------------------|---|
| Flow Rate Range | 0.001~9.999 mL/min |
| Flow Precision | ±0.5 % |
| Flow Repeatability | RSD≤0.1 % |
| Pressure Precision | ≤0.5 % |
| Max Pressure | ≤42 Mpa |
| Wavelength Range | 200-400/200-800 nm |
| Lamp | Deuterium lamp, Tungsten lamp is optional |
| Wavelength Precision | ±1 nm |
| Wavelength Repeatability | 0.2 nm |
| S/N | ±0.75×10 ⁻⁵ AU, 254nm, TC=1S |
| Baseline Drift | 1.5×10 ⁻⁴ AU, 254 nm |



Accessories for Flash Purification Products

Fritted Empty Cartridges for Solid Sample Loading

(One set of empty flash column include one column, one cap and two frit plates)

| Part No. | Column Type & Description | Quantity (PK) |
|----------|---|---------------|
| FCH012-C | Full set Empty column for 12 g | 20 |
| FCH020-C | Full set Empty column for 20 g | 20 |
| FCH040-C | Full set Empty column for 40 g | 10 |
| FCH080-C | Full set Empty column for 80 g | 5 |
| FCH120-C | Full set Empty column for 120 g | 5 |
| FCH012-S | Full set Empty column for 12 g Luer lock | 20 |
| FCH020-S | Full set Empty column for 20 g Luer lock | 20 |
| FCH040-S | Full set Empty column for 40 g Luer lock | 10 |
| FCH080-S | Full set Empty column for 80 g Luer lock | 5 |
| FCH120-S | Full set Empty column for 120 g Luer lock | 5 |



| Part No. | Column Type & Description | Quantity (PK) |
|-----------|----------------------------------|---------------|
| FCH004-H | Full set Empty column for 4 g | 20 |
| FCH012-H | Full set Empty column for 12 g | 20 |
| FCH020-H | Full set Empty column for 20 g | 20 |
| FCH040-H | Full set Empty column for 40 g | 10 |
| FCH080-H | Full set Empty column for 80 g | 5 |
| FCH120-H | Full set Empty column for 120 g | 5 |
| FCH330-H | Full set Empty column for 330 g | 1 |
| FCH800-H | Full set Empty column for 800 g | 1 |
| FCH1500-H | Full set Empty column for 1500 g | 1 |

Flash Frit

| Part No. | Type & Description | Quantity (PK) |
|-----------|------------------------------------|---------------|
| FCS004-S | Polyethylene frit; top; 20µm; 1/8" | 20 |
| FCS012-S | | 20 |
| FCS020-S | | 20 |
| FCS040-S | | 10 |
| FCS080-S | | 5 |
| FCS120-S | | 5 |
| FCS330-S | | 1 |
| FCS800-S | | 1 |
| FCS1500-S | | 1 |
| FCS3000-S | | 1 |





| Part No. | Type & Description | Quantity (PK) |
|-----------|--|--|
| FCS004-X | Polyethylene frit; bottom; 10µm; 1/16 | 20 |
| FCS012-X | | 20 |
| FCS020-X | | 20 |
| FCS040-X | | 10 |
| FCS080-X | | 5 |
| FCS120-X | | 5 |
| FCS330-X | | 1 |
| FCS800-X | | 1 |
| FCS1500-X | | 1 |
| FCS3000-X | | 1 |
| FCS012-SS | | Polyethylene frit for screw-on Flash column; top; 20µm; 1/8 |
| FCS020-SS | 20 | |
| FCS040-SS | 10 | |
| FCS080-SS | 5 | |
| FCS120-SS | 5 | |
| FCS012-SX | Polyethylene frit for screw-on Flash column; bottom; 10µm; 1/16 | 20 |
| FCS020-SX | | 20 |
| FCS040-SX | | 10 |
| FCS080-SX | | 5 |
| FCS120-SX | | 5 |

066

Purification Products

Column Packing Tools

| Part No. | Type & Description | Quantity |
|----------|--------------------|----------|
| FGJ-1 | For 4/12g column | 1 |
| FGJ-2 | For 20/40g column | 1 |
| FGJ-3 | For 80/120g column | 1 |
| FGJ-4 | For 12/20g column | 1 |

Wrench for Screw on Columns

| Part No. | Type & Description | Quantity |
|----------|------------------------|----------|
| F-BS-12 | Wrench for 12g column | 1 |
| F-BS-20 | Wrench for 20g column | 1 |
| F-BS-40 | Wrench for 40g column | 1 |
| F-BS-80 | Wrench for 80g column | 1 |
| F-BS-120 | Wrench for 120g column | 1 |

Cleanert[®] Phase Separation Cartridge

Bonna-Agela provide phase separator with a PDPE membrane design, which can separate organic and aqueous phases effectively;

12 mL, 60 mL, 150 mL volume size column are available; This product can be used to exclude water or to separate solvent phases.

Advantages

- 1) Easy to operate and time saving;
- 2) Efficient and economic;
- 3) Suitable to automated processing.

Operation

Operation of this separation cartridge is straightforward by transferring liquid sample to the head space of cartridge that organic portion will pass through but aqueous phase will be retained. This selective filtration works well for separating very small amount aqueous or organic part of a liquid mixture.

Ordering information

| Part Number | Description | Vol | Package |
|-------------|------------------------------------|--------|---------|
| PSC12 | Cleanert Phase Separator Cartridge | 12 mL | 100 |
| PSC60 | Cleanert Phase Separator Cartridge | 60 mL | 50 |
| PSC150 | Cleanert Phase Separator Cartridge | 150 mL | 25 |

Drying Cartridges for Quick Work-up

| Part. No. | Description | Quantity(PK) |
|-----------|------------------------------|--------------|
| QWD001 | MgSO ₄ ; 1 mL; IC | 50 |
| QWD003 | MgSO ₄ ; 3 mL; IC | 50 |
| QWD006 | MgSO ₄ ; 6 mL | 30 |





Pre-packed Solid Loading Cartridges for Other System Vendors



| Part No. | Column Type & Description | Quantity (PK) |
|----------------|---|---------------|
| SLC6050-5025 | Silica 5 g/25 mL Prepacked solid load cartridges | 20 |
| SLC6050-10060 | Silica 10 g/60 mL Prepacked solid load cartridges | 16 |
| SLC6050-20060 | Silica 20 g/60 mL Prepacked solid load cartridges | 16 |
| SLC6050-25060 | Silica 25 g/60 mL Prepacked solid load cartridges | 16 |
| SLC6050-500150 | Silica 50 g/150 mL Prepacked solid load cartridges | 8 |
| SLC6050-700150 | Silica 70 g/150 mL Prepacked solid load cartridges | 8 |
| SLN6050-5025 | NH ₂ 5 g/25 mL Prepacked solid load cartridges | 20 |
| SLN6050-10060 | NH ₂ 10 g/60 mL Prepacked solid load cartridges | 16 |
| SLN6050-20060 | NH ₂ 20 g/60 mL Prepacked solid load cartridges | 16 |
| SLN6050-25060 | NH ₂ 25 g/60 mL Prepacked solid load cartridges | 16 |
| SLN6050-500150 | NH ₂ 50 g/150 mL Prepacked solid load cartridges | 8 |
| SLN6050-700150 | NH ₂ 70 g/150 mL Prepacked solid load cartridges | 8 |
| SL96050-5025 | C18 5 g/25 mL Prepacked solid load cartridges | 20 |
| SL96050-10060 | C18 10 g/60 mL Prepacked solid load cartridges | 16 |
| SL96050-20060 | C18 20 g/60 mL Prepacked solid load cartridges | 16 |
| SL96050-25060 | C18 25 g/60 mL Prepacked solid load cartridges | 16 |
| SL96050-500150 | C18 50 g/150 mL Prepacked solid load cartridges | 8 |
| SL96050-700150 | C18 70 g/150 mL Prepacked solid load cartridges | 8 |

Other Format Columns for Solid Sample Loading

Operation

1. Open the column
2. Add sample solution
3. Evaporate the solution
4. Cap the column
5. Put the column on the top of main separation column



Ordering information

| Part No. | Description | Quantity (PK) |
|--------------|--------------|---------------|
| QW001 | Silica; 1 mL | 50 |
| QW003 | Silica; 3 mL | 50 |
| S-CS140012-0 | Silica; 12 g | 20 |
| S-CS140020-0 | Silica; 20 g | 20 |
| S-CS140040-0 | Silica; 40 g | 10 |
| S-CS140080-0 | Silica; 80 g | 5 |

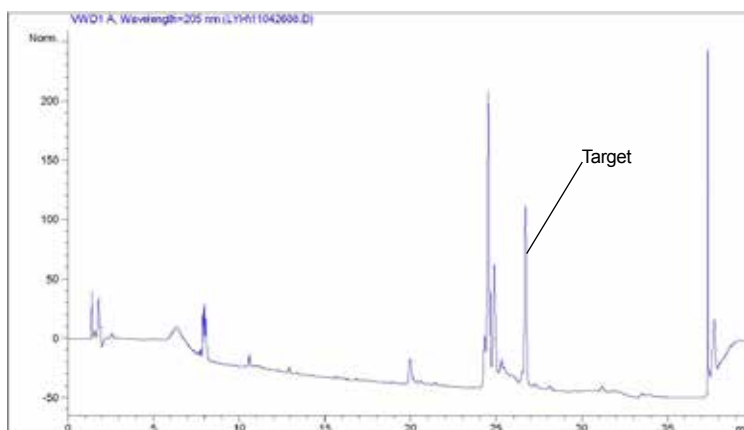
Applications

The Extraction of a Polypeptide

APPID: EPB1002

HPLC Analysis

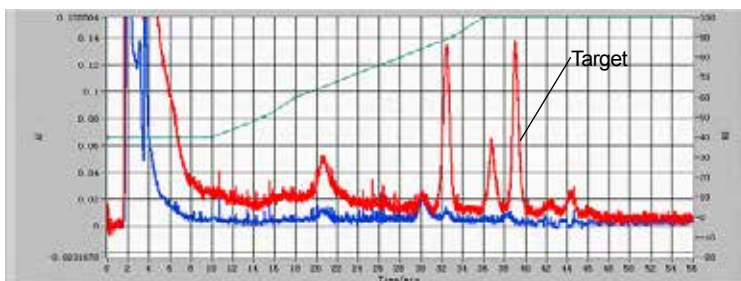
Column: Venusil® XBP C18, 5 μm, 100 Å, 4.6×150 mm
 Mobile Phase: A (water+0.01 %TFA): B (ACN) =73: 27
 Flow Rate: 1 mL/min;
 Detector: UV 205 nm;
 Sample Injection: 1 μL



HPLC chromatogram of polypeptide

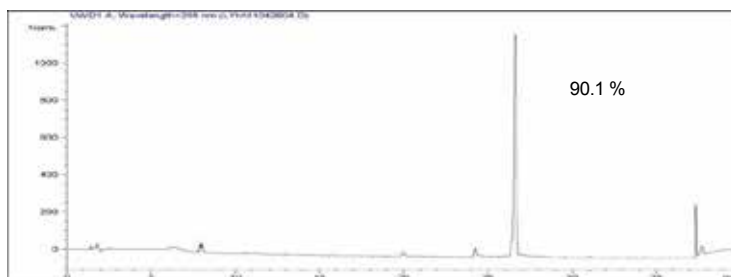
Preparation

Column: Claricep™ FLASH C18 12 g, 40~60 μm, 100 Å
 Mobile Phase: ACN/Water
 Flow Rate: 15 mL/min
 Detector: UV 205 nm, 280 nm
 Sample Injection: 2 mL



Prep chromatogram of the peptide (collection time 36-38 min)

Purity Test of The Fraction



Chromatogram of the fraction

Conclusions

Claricep™ FLASH C18 gives adequate separation of the polypeptide sample with purity up to 90.1 %, and 78 % recovery.

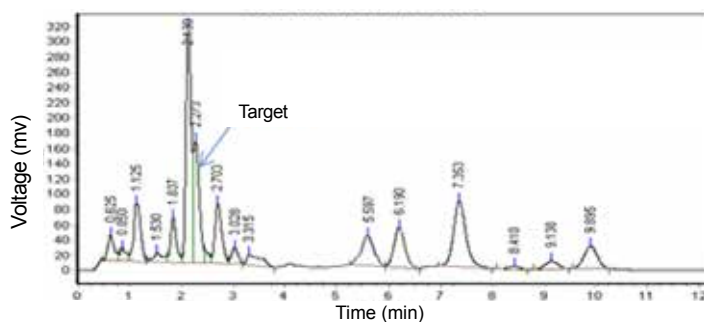


Separation of an Active Lignin Ingredient

APPID: EPP1002

HPLC Analysis

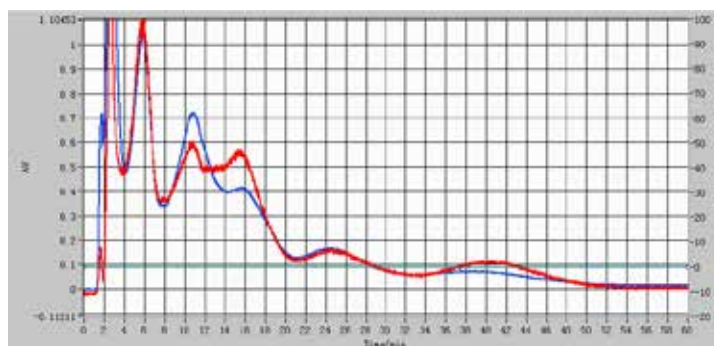
Column: Venusil® XBP C18(L), 5 μ m, 150 \AA , 2.1 \times 150 mm
Mobile Phase: A (water+0.01 %TFA): B (ACN)=77:23
Flow Rate: 0.5 mL/min
Detector: UV 267 nm
Sample Injection: 2 μ L



HPLC chromatogram of lignin

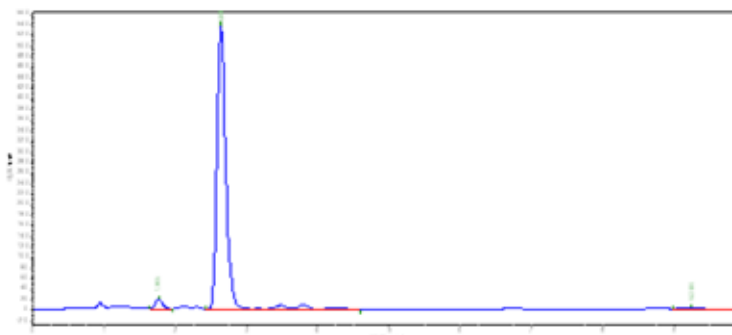
Preparation

Column: Claricep™ FLASH C18, 12 g, 40~60 μ m, 100 \AA
Mobile Phase: ACN
Flow Rate: 15 mL/min
Detector: UV 205 nm, 280 nm
Sample Injection: 2 mL



Prep chromatogram of lignin (collection time 21-32 min)

Purity Test of The Fraction



Chromatogram of the fraction

Conclusions

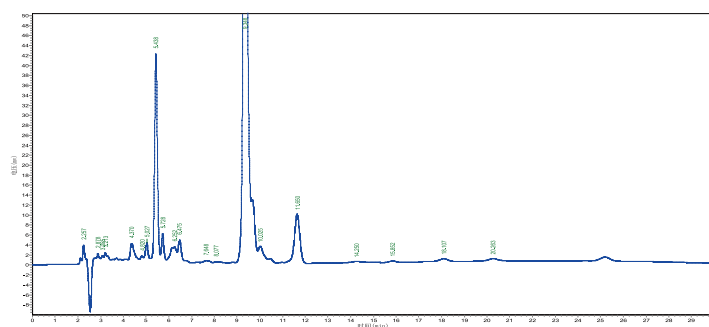
The 12 to 330 g flash columns show good reproducibility, and the recoveries of this application is above 60 %.

Purification of a Small Bioactive Compound

APPID: EPB1003

HPLC Analysis

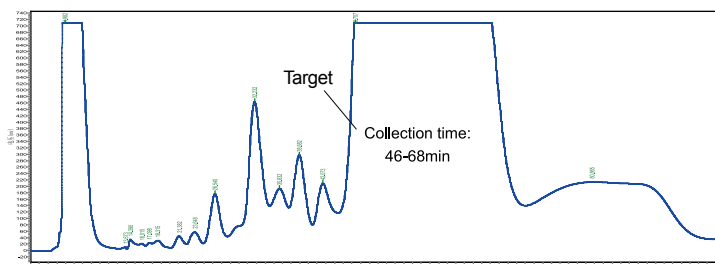
Column: Unisol C18, 4.6×150 mm, 5 μm, 100 Å
Mobile Phase: A (water): B (ACN) =75:25
Flow Rate: 1.0 mL/min
Detector: UV 268 nm
Sample Injection: 1 μL



HPLC chromatogram of the sample

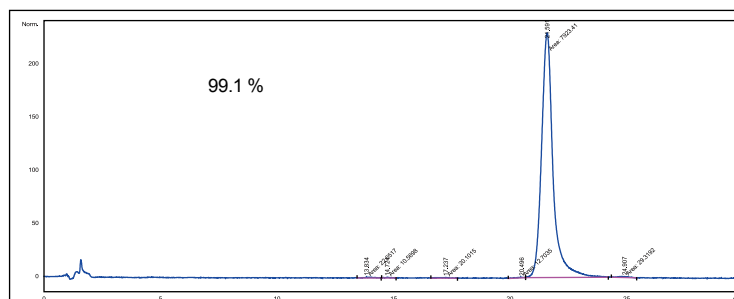
Preparation

Column: Venusil® XBP Silica, 20×250 mm, 10 μm, 100 Å
Mobile Phase: Dichloromethane: methanol: water
= 85:20:2;
Flow Rate: 23 mL/min
Detector: UV 268 nm; Sample Injection: 8.5 mL



Prep chromatogram of the sample (collection time 46-68 min)

Purity Test of The Fraction



Chromatogram of the fraction

Conclusions

A NP purification procedure was used in this application, followed purity analysis with a reversed-phase method. It was found that loading capacity of the NP procedure was 10 times higher than reversed-phase separation. The recovery of the NP separation was above 90 %, and the purity of the monomer was increased from 62 % to 99 % by the purification method.

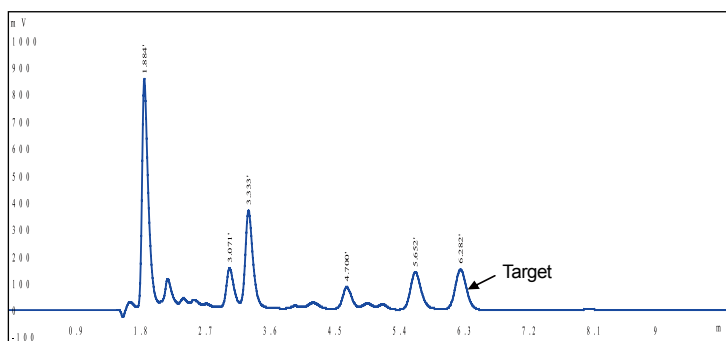


The Separation of Naturally Occurring Phenol

APPID: EPP1004

HPLC Analysis

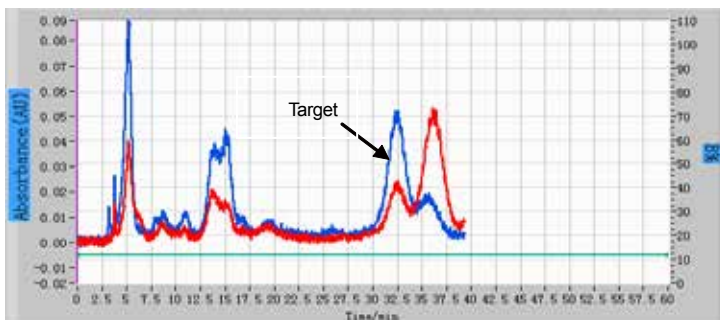
Column: Venusil® XBP C18, 5 μm, 100 Å, 4.6×150 mm
 Mobile Phase: Methanol: water =75:25
 Flow Rate: 1 mL/min
 Detector: UV 287 nm
 Sample Injection: 20 μL (methanol dissolved)



Chromatogram of sesame meal sample

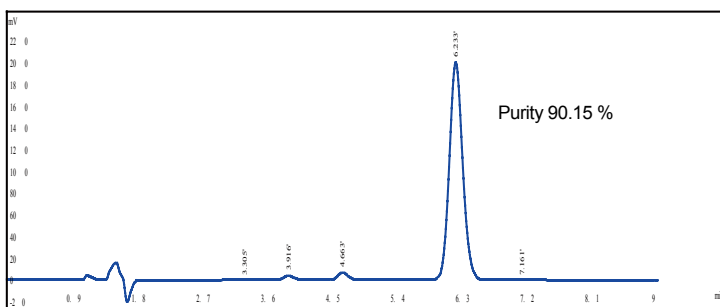
Preparation

Column: Claricep™ Flash Si, 90 Å, 20 g× 3
 Mobile Phase: Ethyl acetate: petroleum ether =12:88
 Flow Rate: 30 mL/min
 Detector: UV287 nm, 254 nm
 Sample Injection: 2 mL (420 mg)



Prep chromatogram of sample (collection time 30.5-33.5 min)

Purity Test of The Fraction



Chromatogram of the fraction

Conclusions

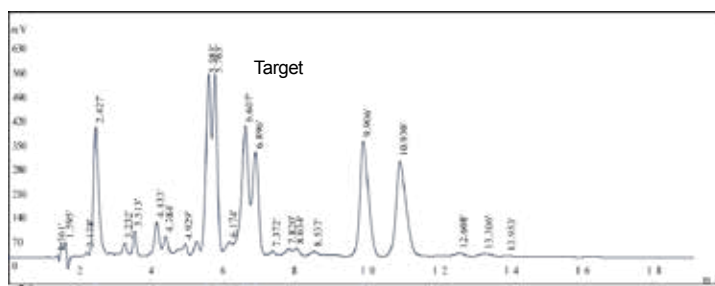
An extraction procedure is established for the natural products. The purity of column extracted target was up to 90%. A large volume loading method was successful for this application by NP mechanism, and the purity of the compound was detected by RP mode.

The Enrichment and Purification of a Oxime Impurity

APPID: EPP1005

HPLC Analysis

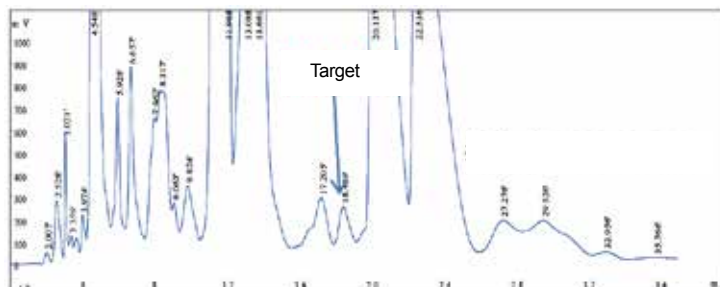
Column: Venusil® XBP C18, 4.6×150 mm, 5 μm, 100 Å
Mobile Phase : 0.25 % Tetrabutyl ammonium hydroxide(A): ACN(B) =75:25
Flow Rate: 1.3 mL/min
Detector: UV 254 nm
Sample Injection: 1 μL



HPLC Chromatogram of cefixime sample

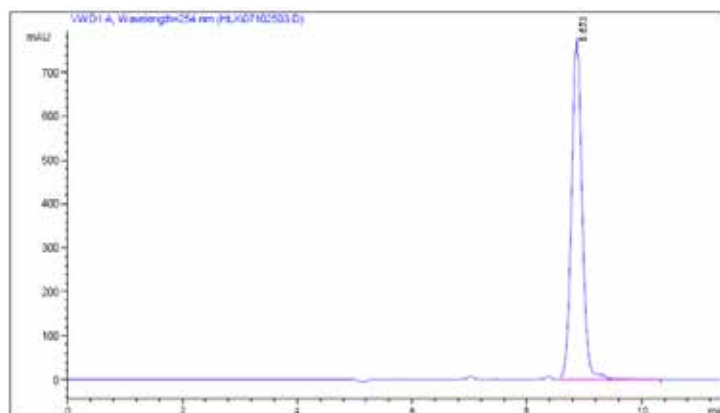
Preparation

Column: Venusil® XBP C18(2), 20×250 mm, 5 μm, 100 Å
Mobile Phase: A: 0.01 %TFA+0.01 %TEA (pH=5.84)
B: ACN
Gradient: The rate of B increases from initial 10 % to 30 % after 30 min
Flow Rate: 18 mL/min
Detector: UV 254 nm
Sample Injection: 5 mL



The preparation of cefixime sample (collection time 18.2-18.8 min)

Purity Test of The Fraction



HPLC chromatogram of the fraction



The Derivatives of a DNA Fragment

APPID: EPB1004

Sample: yellow power, soluble in ACN, molecular weight less than 5000

Preparation

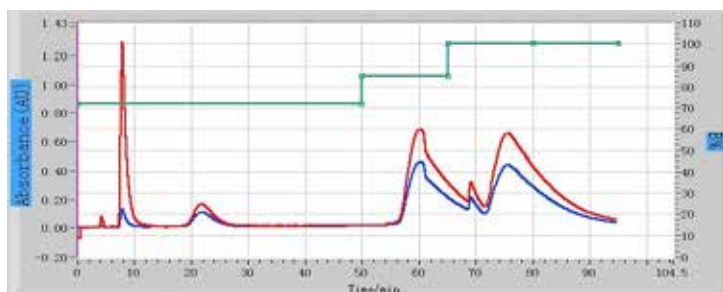
Column: 120 g Hilic Flash column (20-35 μm)

Instrument: CHEETAH[®] MP 100

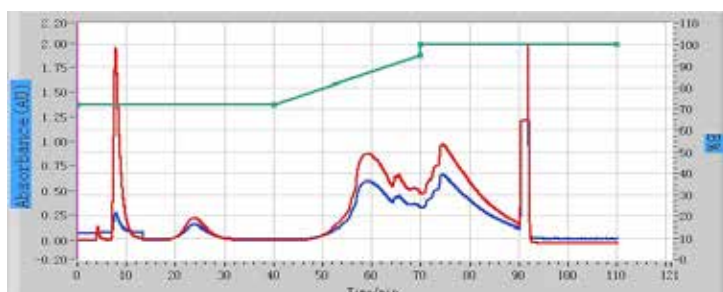
Mobile Phase: Petroleum ether: ethyl acetate =30:70

Flow Rate: 50 mL/min

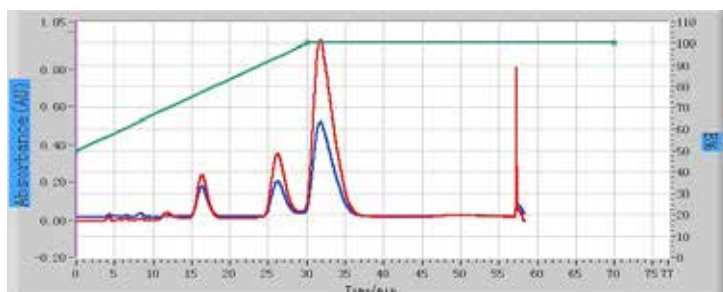
Detector: UV 240 nm, 280 nm



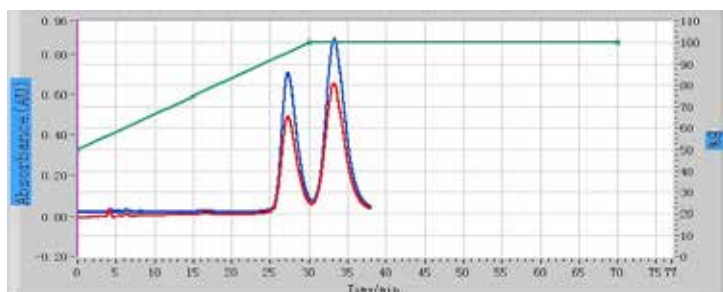
Prep chromatogram of TB-G (120 g Hilic Flash column, sample loading 1.4 g)



Prep chromatogram of TB-G (120 g Hilic Flash column, sample loading: 2.5 g)



Prep chromatogram of TB-U (120 g Hilic Flash column, sample loading: 0.8 g)



Prep chromatogram of TB-A (120 g Hilic Flash column, sample loading: 0.8 g)

Conclusions

Hilic columns perform well to obtain purified derivatives of the DNA fragment. Three derivatives of the DNA fragment were prepared.

Clomazone

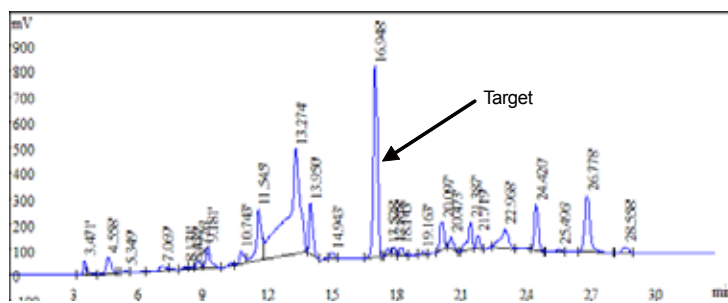
APPID: EPP1006

Crude sample is a brownish and viscous liquid with some insoluble white particles. 10 mg of the sample was dissolved in 0.5 mL methanol.

Impurity: Pyridine

Semi-preparation
Column: Venusil® XBP C18, 10×250 mm, 5 µm, 100 Å,
S/N: V9510515BI0118b
Mobile phase: A: water B: methanol
Detector: UV 230 nm
Flow Rate: 4 mL/min
Sample Injection: 20 µL
Gradient

| Time | B % |
|------|-----|
| 0 | 60 |
| 20 | 90 |
| 30 | 90 |

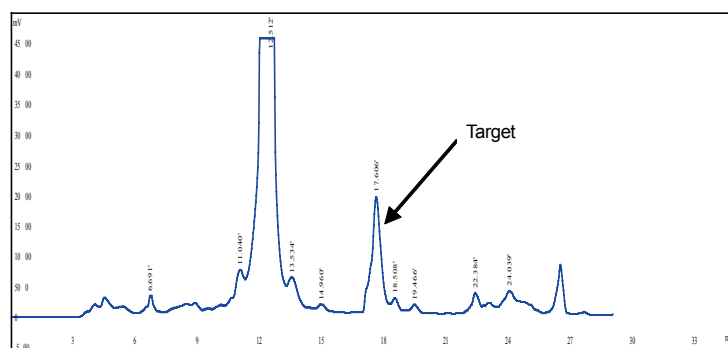


Semi-preparation chromatogram of fraction

Preparation

Column: Venusil® XBP C18, 20×250 mm, 5 µm, 100 Å
S/N: V9510515BI0118b
Mobile Phase: A: water B: methanol
Detector: UV 230 nm
Flow Rate: 16 mL/min;
Sample Injection: 1 mL (dissolve 1 g with 5 mL methanol)
Gradient

| Time/min | B% |
|----------|----|
| 0 | 60 |
| 20 | 90 |
| 30 | 90 |

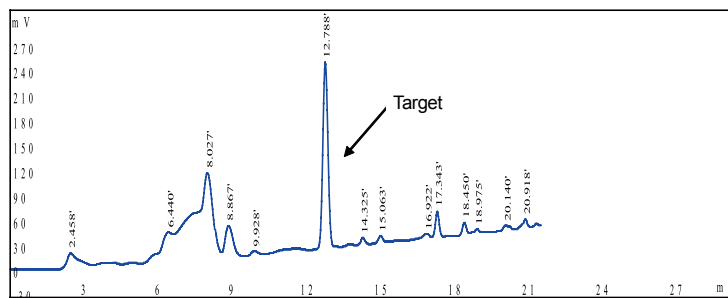


Prep chromatogram of the fraction

HPLC Analysis

Column: Venusil® XBP C18, 4.6×150 mm, 5 µm, 100 Å
S/N: V9510525CK0300
Mobile Phase: A: water B: methanol
Detector: UV 230 nm
Flow Rate: 1 mL/min
Sample Injection: 20 µL
Gradient

| Time/min | B% |
|----------|----|
| 0 | 60 |
| 20 | 90 |
| 30 | 90 |



HPLC chromatogram of the fraction

Bonna-Agela USA

2038A Telegraph Rd.
Wilmington, DE 19808, USA
Tel: (302) 48 8798
Fax: (302) 636 9339
Email: info@bonnaagela.com

Bonna-Agela China

179 South Street, Teda West Zone,
Tianjin 300462, China
Tel: +86 (22) 25321032/7023
Fax: +86 (22) 25321033

Bonna-Agela India

#212, 2nd Floor, Sector-63, Noida,
Uttar Pradesh
Tel: 91120-4225466/67
Fax: 91120-4225465

Distributors:

South Korea

Anylab Co.,LTD
Tel: 02-2027-2628
Email: ianylab@naver.com

South Korea

Purichem Corporation
Tel: +82-31-341-5507
Email: yh.shin@purichems.co.kr

Japan

Lab Lab Co.,Ltd
Tel: +81-426-631-1006
Email: kyoko.hayami@lablab.co.jp

Taiwan

KM3 SCIENTIFIC CORPORATION
Tel: (02)8522-8321
Email: km3.sci@msa.hinet.net

Thailand

Science Integration Co.,Ltd
Tel: 66-2889-9029
Email: scienceintegration@yahoo.com

Singapore

Nanonex Technology Pte Ltd.
Email: sales@nanonextech.com

Vietnam

Anphuc Co.,Ltd
Tel: (84.8) 3773 4339
Email: anphuctech@gmail.com

German

Kinesis Ltd.
Tel: +44 (0)1480 212122
Email: sales@kinesis.co.uk

Poland

Genore chromatografia
Tel: (+48) 504 187 588
Email: jacek.malinowski@genore.pl

Spain

IRIDA IBERICA S.L
Tel: 34911130824
Email: nikose@irida.es

France

JASCO France
Tel: (+33)240 43 00 43
Email: agosset@jascofrance.fr

Peru

FILTER LAB PERU EIRL
Tel: 6087842
Email: rmassa@gmail.com

Brasil

CMS Equipments for Labortories
Tel: 55-19-3882-2514
Email: marcio@cmscientifica.com.br

Chile

Genesys Analitica
Tel: (562) 2094704
Email: VREDLICH@genesysanalitica.cl

USA

VWR International, LLC
Tel: (610) 386-1700
Email: Debra_Sesholtz@vwr.com

USA

Thermo Fisher Scientific Inc.
Tel: 781.622.1000 / 800.678.5599
Email: richard.cristiano@thermofisher.com

USA

A Chemtek Inc.
Tel: 508-856-7100
Email: fang.liu@achemtek.com

Canada

Beacon Innovation International Inc.
Tel: 1 519 731 1265
Email: service@BIII.CA

Israel

I.S.I, Israel scientific instruments LTD
Tel: 972-3-9232202 ext 8
Email: shani.cohen@isil.co.il

Jordan

NATIONAL CENTER FOR MEDICAL SUPPLIES
Tel: 962-6-5858277
Email: ncms@go.com.jo

Turkey

SPEKTROTEK AŞ
Tel: (+90)216 6885778
Email: info@spektrotek.com

Egypt

ChromaTech
Tel: 002-02-26385393
Email: xgaman@yahoo.com

South Africa

Stargate Scientific.
Tel: 011 675 7433
Email: elias@stargatescientific.co.za

Better Solutions for Chromatography

ABN: ZL-03102



All rights reserved.

Bonna-Agela Technologies 2016.4 Rev.1