

# Blossmate® Seires HPLC Column

Blossmate series column is a high-end HPLC column launched by Welch Materials. Compared with Xtimate and Ultisil series, Blossmate's column performance and reproducibility have been improved in an all way and it is especially suitable for the detection of multi-component impurity projects.

## Features:

- It adopts a new generation of ultra-high-purity fully porous silica gel, which greatly ensures the perfect column efficiency and separation performance.
- Each column is tested individually with special testing prodecure under stricter standards, which guarantee the quality and performance of the column.
- Extremely stable separation performance to ensure better analysis reproducibility and perfect peak shape.
- Excellent batch-to-batch reproducibility, especially for the analysis of multi-impurity component applications.
- Blossmate uses a unique bonding process that enables the column to withstand high water phase, high pH experimental environments.

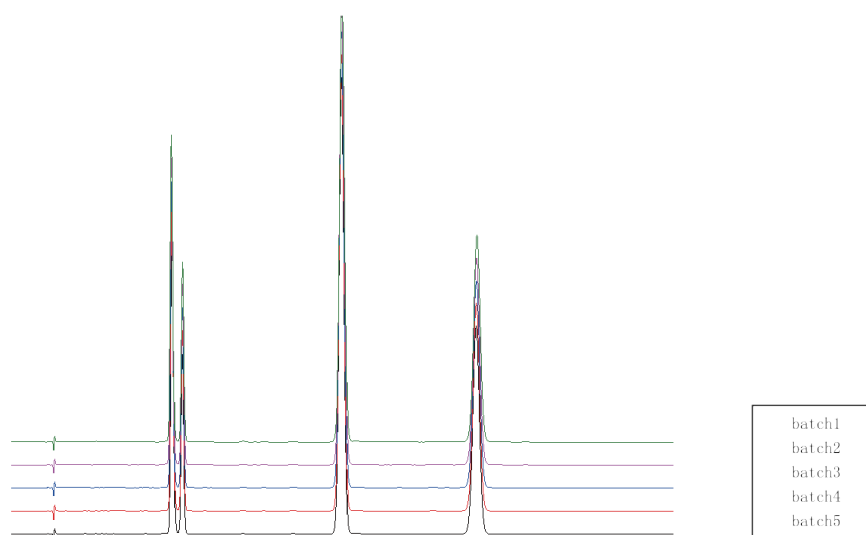
## Blossmate® Series Silica

Blossmate® series HPLC column uses a new fully porous silica packing materials, which has higher silica purity, more uniform particle size and more uniform pore size distribution. Under the unique packing process and strict quality control conditions, Blossmate silica not only has the high mechanical strength and high column efficiency, but also has the perfect and excellent reproducibility, makes it to be the best choice for highly reproducible project.

## Blossmate® series columns provide better reproducibility, higher efficiency and higher peak capacity.

Blossmate® series columns use a new high-purity fully porous silica and Welch's unique bonding process and double end-capping techniques to ensure that the silica surface has a higher inertness, and thus has a more symmetrical peak shape and higher column efficiency.

Blossmate columns adopt high-standard strict quality control conditions to ensure that each column has undergone strict quality screening before leaving the factory, which makes the column have better reproducibility and higher peak capacity.

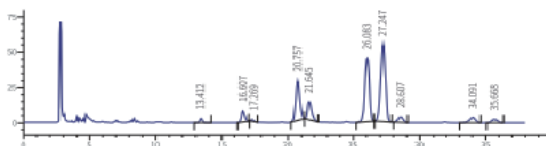


# Blossmate® C18

Blossmate® C18 is a general-purpose, highly versatile column which suitable for sample analysis of many complex components, as well as flexible method development under a range of chromatographic conditions.

Bonded phase	Octadecyl group	Surface Area(m <sup>2</sup> /g)	300(100 Å)
pH Range	2-8	Carbon Loading(%)	14(100 Å)
Particle Size	5 µm	USP List	L1
Endcapped	Yes		

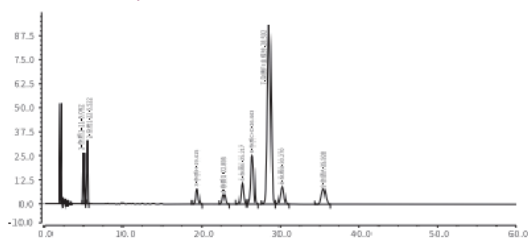
## Ganoderma lucidum spore powder fingerprint



Retention time	Area	Area%	Peak height	Plates	Resolution(USP)	Asymmetry
18.584	14526	1.469	806	26475	n.a.	1.08160
23.608	32974	3.334	1479	28102	3.85059	1.18897
24.572	32974	3.334	1479	28102	3.85059	1.18897
24.572	7717	0.780	382	32232	2.26092	0.96729
30.278	136595	15.834	5161	27563	8.42344	1.44760
31.970	72213	7.302	2437	29831	2.30160	1.03876
39.024	294693	29.795	9139	33714	8.87067	1.01296
41.307	351960	35.589	10369	33224	2.60093	0.95249
43.794	23177	2.344	610	29056	2.57241	0.98393
52.527	21926	2.217	487	33387	8.03340	1.08107
55.686	13179	1.333	294	34346	2.69108	1.13076

Column:	Blossmate® C18 (4.6×250mm, 5µm)
Mobile Phase:	Acetonitrile/isopropyl alcohol=51: 49
Flow Rate:	1.0 mL/min
Temperature:	30°C
Detector:	Evaporative Light Scattering Detector Drift Tube Temperature 25 °C, carrier gas flow rate 1.5L/min
Injection Volume:	5 µL

## Palonosetron hydrochloride related substances



Retention time	Area	Height	Plates(USP)	Asymmetry(EP)	Resolution(EP)
5.062	2.409	26.515	20333	1.03	n.a.
5.522	2.17	32.938	20724	1.02	3.12
19.415	3.144	8.367	17349	0.99	37.50
22.895	2.172	5.066	18684	0.95	5.54
25.217	5.019	11.058	19813	0.98	3.36
26.443	12.174	25.787	19976	0.98	1.68
28.592	48.148	93.887	19769	1.00	2.78
30.270	5.191	9.390	18748	0.96	1.98
35.508	5.403	8.344	19345	0.96	5.51

Column:	Blossmate® C18 (4.6×250mm,5µm)
Mobile Phase:	0.04mol/L potassium hexafluorosulfonate solution (pH1.5)/acetonitrile=68/32
Flow Rate:	1.0 mL/min
Temperature:	25°C
Detector:	210nm
Injection Volume:	10 µL

## Ordering Information

P/N	Particle size	Specification
00601-21043	5 µm	4.6×250 mm

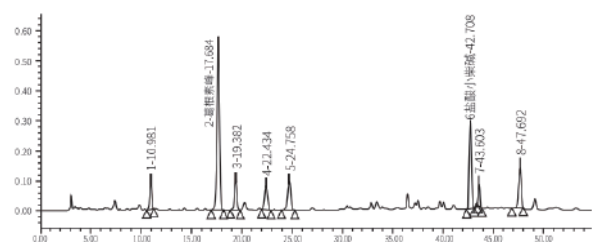
# Blossmate® Aqs C18

## --High Water-resistance HPLC Column

PH range	Carbon load	Pore Size	Specific surface area	Maximum temperature	Maximum pressure
2.0-8.0	10%	100Å	300m <sup>2</sup> /g	60°C	40MPa

Blossmate® Aqs C18 is a C18 reversed-phase column compatible with pure water phase and pure salt phase. Under the condition of high proportion of water phase, the column still has excellent stability and high column efficiency, suitable for analysis of hydrophilic and highly polar samples.

### Characteristic atlas of Gegenqinlian Tablet



Name	Retention time	Area	Height	Plates	Separation	Tailing factor
1	10.981	1433409	98041	12632	n.a	0.93
2 Puerarin Peak	17.684	10686918	600548	23303	15.45	0.97
3	19.382	13239110	106398	25332	3.34	1.00
4	22.434	1694960	65394	29632	6.01	1.02
5	24.758	2122902	101483	34075	4.33	0.91
6 Pachalaine hydrochloride	42.708	4111863	294463	207619	38.63	1.22
7	43.603	814122	79927	399390	2.71	1.15
8	47.692	2510271	144775	171722	10.94	0.88

Column:	Welch Blossmate® Aqs-C18 ( 4.6x250mm, 5µm )		
Mobile Phase:	Mobile phase A: get grade methanol. Mobile phase B: take 1.5 mL of trifluoroacetic acid, add it to 1000 mL of water to make a 0.15% trifluoroacetic acid solution, mix well, and ultrasonically degas.		
	Time (min)	Mobile Phase A(%)	Mobile Phase B(%)
	0	23	77
	25	30	70
	26	35	65
	39	42	58
	40	45	55
	55	45	55
Flow Rate:	1.0 mL/min		
Temperature:	30°C		
Detector:	Characteristic Spectrum 250nm Content Determination Puerarin 250nm Berylkerine Hydrochloride 348nm		
Injection Volume:	10 µL		

### Ordering Information

P/N	Particle size	Specification
00602-21043	5 µm	4.6x250mm

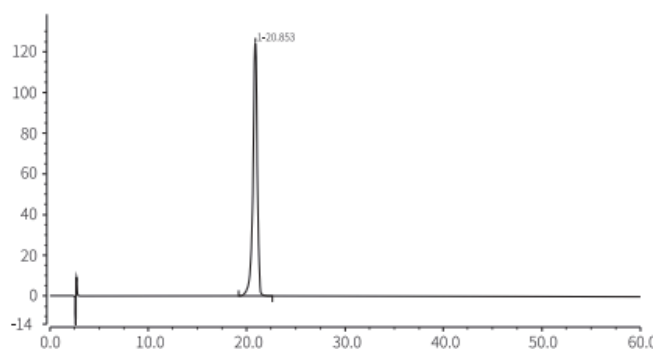
# Blossmate® ST C18

## --Wide pH Range HPLC Column

PH range	Carbon load	Pore size	Specific surface area	Maximum temperature	Maximum pressure
1.0 - 11.0	12%	100Å	300m <sup>2</sup> /g	60 C	40MPa

Blossmate® ST-C18 column adopts a special silica matrix surface treatment technology, while maintaining the high mechanical strength and high column efficiency of the silica matrix, the pH tolerance range of the column is extended to 1.0-11.0, suitable for the analysis of basic samples, and in method development at higher pH conditions.

### Determination of Xinanning Tablets



Column:	Blossmate® ST-C18 (4.6×250mm, 5µm)
Mobile Phase:	Methanol/Water=25/75
Flow Rate:	1.0 mL/min
Temperature:	25°C
Detector:	250nm
Injection Volume:	10 µL

Retention time	Area	Height	Plates	Asymmetry/EP	Separation
20.853	64.682	123.983	11137	0.89	n.a.

### Ordering Information

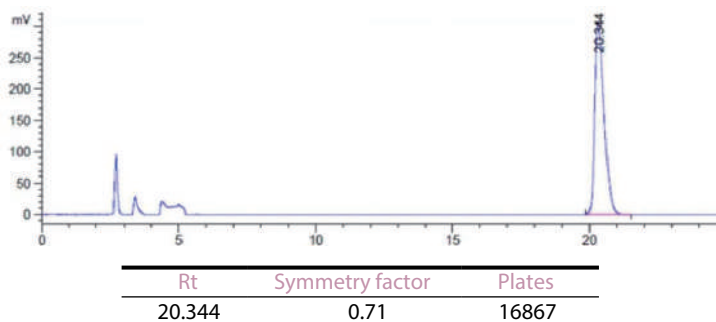
P/N	Particle size	Specifications
00603-21043	5µm	4.6×250mm

## Blossmate® Polar-Propylamide

Blossmate® Polar-Propylamide column is a high-end series hydrophilic (HILIC) column designed to achieve the separation of large polar drug molecules. Based on ultra high purity and high mechanical strength spherical silica gel, the packing materials effectively bonded the polar propyl amide group. As a new generation of Leonurus dedicated column, its results can meet the test requirements of Chinese Pharmacopoeia I for Leonurus content determination while ensuring excellent reproducibility.

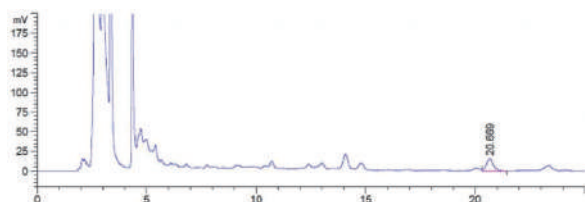
Bonded phase	Polar propyl amide group	Surface Area(m <sup>2</sup> /g)	300(120 Å)
pH Range	2-8	Carbon Loading(%)	7(120 Å)
Particle Size	5 μm	USP List	L68
Endcapped	N/A		

### Systematic adaptability



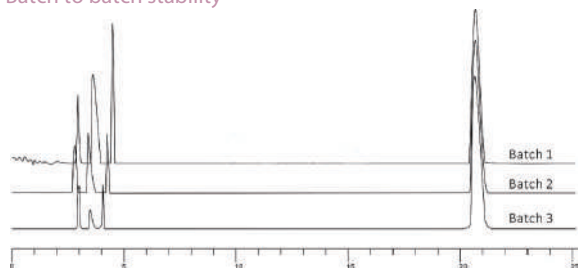
Column:	Blossmate® Polar-Propylamide, 4.6×250mm, 5μm
Mobile Phase:	Acetonitrile: 0.2% glacial acetic acid = 80:20 (V/V)
Flow Rate:	1.0 mL/min
Temperature:	30°C
Detector:	ELSD
Injection Volume:	10 μL

### Test Sample



Rt	Symmetry factor	Plates
20.669	0.89	22579

### Batch to batch stability



Column:	Blossmate®Polar-Propylamide, 4.6×250mm, 5μm, (Batch 1) Blossmate®Polar-Propylamide, 4.6×250mm, 5μm, (Batch 2) Blossmate®Polar-Propylamide, 4.6×250mm, 5μm, (Batch 3)
Mobile Phase:	Acetonitrile: 0.2% glacial acetic acid = 80: 20 (v/v)
Flow Rate:	1.0 mL/min
Temperature:	30°C
Detector:	ELSD
Injection Volume:	10 μL

From the results above, multiple batches of column were selected to test the hydrothorax hydrochloride, showing Blossmate Polar-Propylamide column has excellent reproducibility and stability.

### Ordering Information

#### Blossmate® Polar-Propylamide Column

P/N	Particle size	Specification
00604-21041	5 μm	4.6×150mm
00604-21043	5 μm	4.6×250 mm

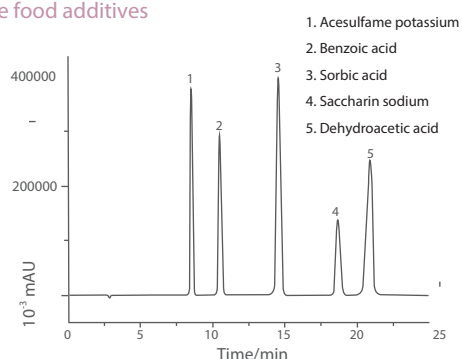
## Blossmate® PSV C18

Blossmate® PSV C18 is a newly developed HPLC column which can be compatible with high proportion of aqueous phase. Taking super high purity spherical silica as matrix, it bonded high-density alkyl functional groups. Its packing materials have high selectivity and strong retention ability for hydrophilic and polar compounds which are often difficult to be retained and separated in normal C18 columns. Blossmate® PSV C18 is fully end-capped, which greatly enhances the packing materials' stability. Even under neutral pH condition, it keeps stable baseline and high sensitivity, making it particularly suitable for high efficiency separation columns with LC-MS. Now, it is widely used in the separation and analysis of oligosaccharides, amino acids, small peptides, nucleotides, organic acids and other active components.

### Features:

- With strong separation and retention ability, better peak shape, higher column efficiency.
- Remain stable baseline and high sensitivity even under neutral pH condition.
- Suitable for high efficiency separation columns by LC-MS.

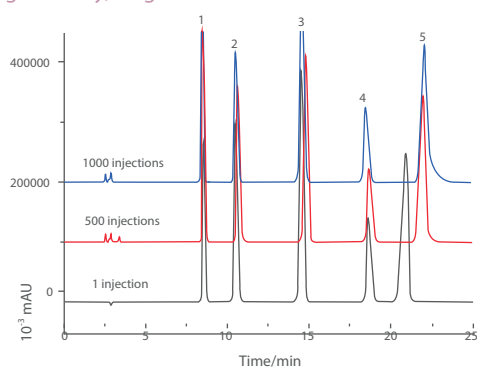
### Five food additives



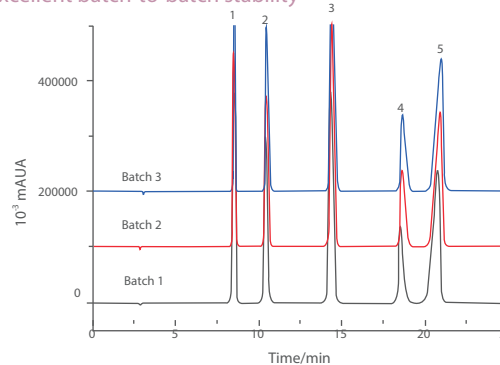
Column:	Blossmate® PSV C18 4.6×250 mm, 5 μm
Mobile Phase:	20 mM ammonium acetate solution: methanol=93: 7(on-line blending)
Flow Rate:	1.0 mL/min
Temperature:	30°C
Detector:	230nm
Injection Volume:	5 μL

Note: When the Blossmate® PSV C18 column is used for the determination of five kinds of food additives, in order to ensure the resolution and the life of the column, the proportion of the water phase in the mobile phase shall not be less than 7%.

### High stability, longer lifetime



### Excellent batch-to-batch stability



From the results above, multiple batches of column were selected to test the column, showing Blossmate PSV C18 column has excellent reproducibility and stability.

### Ordering Information

P/N	Particle size	Specification
00605-21041	5 μm	4.6×150mm
00605-21043	5 μm	4.6×250 mm

# Blossmate® PSV C18 Plus

## --the next generation dedicated column for preservatives

Why is the preservative testing so harmful to HPLC columns?

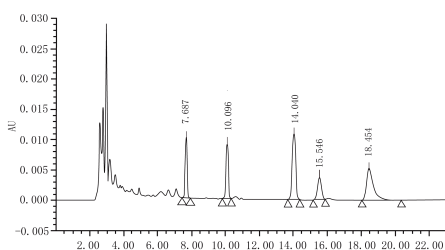
Complex sample matrix but simple pretreatment.

There are many kinds of food on the market, juice, biscuits, cakes, soy sauce, meat.....basically all of them contain preservatives. But for so many kinds of samples, same pretreatment method is used, which leads to a large amount of small molecular impurities and particulate matter are existed in the test samples, which can easily contaminate the column, resulting in a rapid decline in the column performance. To resolve this problem, Welch launched Blossmate PSV Plus Column to meet your requirements of preservative testing.



Blossmate PSV C18 Plus column adopts the integrated design of the guard column and the analytical column. An integrated guard column is added at the front end of the analytical column to protect the analytical column in all directions. At the same time, the dead volume is small, and the replacement of the cartridge is convenient.

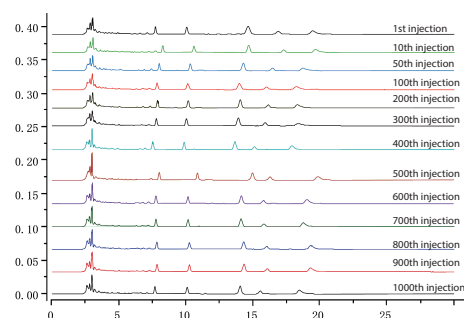
### Analysis of Five Food Additives



Column:	Blossmate® PSV C18 plus 4.6×250mm, 5µm
Mobile Phase:	20mM ammonium acetate solution: methanol = 93:7 (online mixing)
Flow Rate:	1.0 mL/min
Temperature:	30°C
Detector:	230nm
Injection Volume:	5 µL

Name	Retention time	Area	Height	R	Plates	Tailing factor
Acesulfame	7.687	85170	10969	-	22332	1.00
Benzoic acid	10.096	95190	9935	10.25	24980	0.96
sorbic acid	14.040	155694	11442	12.56	24061	0.96
Sodium Saccharin	15.546	63598	4132	3.83	22703	0.94
Dehydroacetic acid	18.454	150007	5520	5.27	12723	1.80

### Service Life Experiment



Injections	Flow rate (mL/min)	R of dehydroacetic acid & sodium saccharin (R≥1.50)	Plate (dehydroacetic acid)	Tailing factor (dehydroacetic acid)	Column pressure (MPa)
1st	1.0	5.27	12723	1.80	14.0
10th	1.0	5.73	13344	1.78	14.0
50th	1.0	5.92	13702	1.66	14.1
100th	1.0	5.49	14407	1.70	14.1
200th	1.0	6.01	14604	1.67	14.3
300th	1.0	6.41	15408	1.61	14.2
400th	1.0	5.51	14487	1.68	14.1
500th	1.0	3.49	15917	1.83	14.3
600th	1.0	3.83	11100	1.81	14.3
700th	1.0	3.44	8189	1.82	14.4
800th	1.0	4.09	12662	1.38	14.2
900th	1.0	3.98	12791	1.70	14.3
1000th	1.0	3.96	11340	1.83	14.3

### Ordering Information

P/N	Specification
00607-21441	4.6×150mm, 5µm
00607-21443	4.6×250mm, 5µm
00808-04143	Cartridge: 4.6×10mm, 5µm, 120Å

## Blossmate® SAX

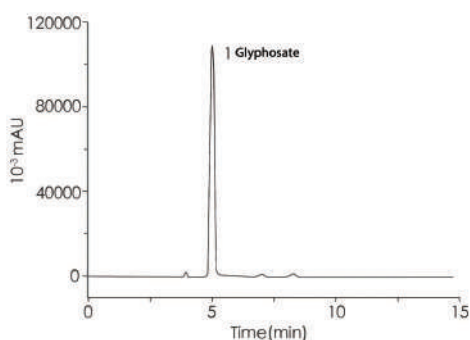
Blossmate® SAX column can be used under the condition of high flow rate and high pressure. It is compatible with ionic strength change of various mobile phase to achieve fast equilibrium and suitable for the separation and purification of polar small molecules and other biological macromolecules compounds, such as glyphosate, nucleotides, proteins and peptides.

### Features:

- Based on ultra pure spherical silica gel, bonded quaternary ammonium functional group with high density and high mechanical strength.
- Remain stable baseline and high sensitivity even under neutral pH condition.
- Compatible with organic solvent and mobile phase of buffer salts, remain stable chromatographic properties.
- Comply with the standard of determination of glyphosate, excellent batch to batch stability and long lifetime, ensuring efficient analysis properties.

Bonded phase	Quaternary ammonium functional group	Surface Area(m <sup>2</sup> /g)	300(120 Å)
pH Range	2-8	Carbon Loading(%)	6.5(120 Å)
Particle Size	5 μm	USP List	L14
Endcapped	No		

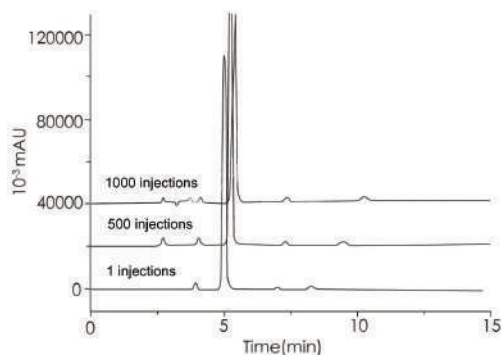
### Glyphosate



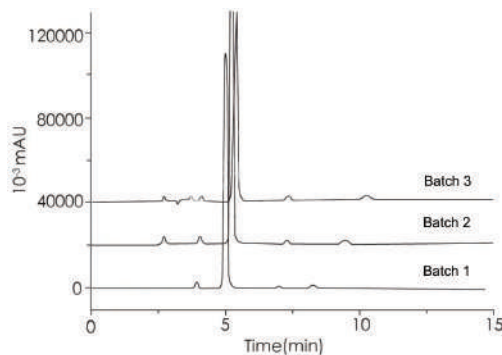
Column:	Blossmate® SAX, 4.6×250mm, 5μm
Mobile Phase:	100mM KH <sub>2</sub> PO <sub>4</sub> :CH <sub>3</sub> OH=85: 15 (adjust pH to 2)
Flow Rate:	1.0 mL/min
Temperature:	25°C
Detector:	195nm
Injection Volume:	20 μL

Note: after mixing mobile phase well, adjust pH to 2.0.

### High stability, longer lifetime



### Excellent batch-to-batch stability



From the results above, multiple batches of column were selected to test the column, showing Blossmate SAX column has excellent reproducibility and stability.

### Ordering Information

#### Blossmate® SAX Column

P/N	Particle size	Specification
00606-21041	5 μm	4.6×150 mm
00606-21043	5 μm	4.6×250mm



## Blossmate® C4

Welch Materials has launched a new Blossmate® C4 column, which fully meets the needs of detecting various biological samples, and provides customers with a HPLC column with higher accuracy, faster peak output, lower cost and a wider range of protein measurement.

### Features:

**Higher Accuracy:** Porous particle silica packing (3.5µm) with large pore size (450Å) to improve protein resolution.

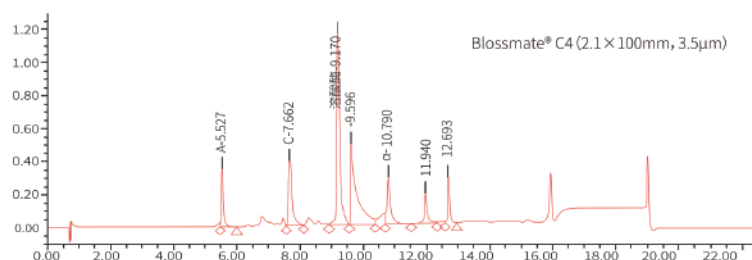
**Faster peak times:** Compared to columns packed with the same size fully porous particles, the analysis time is shorter.

**Lower cost:** Stable porous layer packed bed and 2µm inlet frit prevent inlet clogging, thus extending column life.

**Wider testing range:** measurable protein molecular weight 12kDa-250kDa.

Product name	Bonded phase	Particle size µm	Pore size Å	Specific surface area m <sup>2</sup> /g	Carbon load %	pH stability	Endcapped
Blossmate® C4	Butylsilane	3.5	450Å	15	0.5	1.5-10.0	Yes

### Separation of Seven Proteins on Blossmate® C4 Column



Name	Retention time	Area	Height	Area%	Resolution	Plates	Tailing factor
RNase A	5.527	1760396	387558	6.75	n.a.	39328	1.74
Cytochrome c	7.662	3465735	433891	13.30	13.71	27913	n.a.
Lysozyme	9.170	8614697	1203650	33.05	8.02	46827	2.70
Transferrin	9.596	6962972	532132	26.71	1.86	27533	n.a.
A-lactalbumin	10.790	2401376	316898	9.21	5.45	91394	n.a.
Catalase	11.940	1458165	219515	5.59	7.63	128660	3.03
Carbonic anhydrase	12.693	1400960	316344	5.38	5.89	210042	1.26

Column:	Blossmate® C4
Mobile Phase:	Mobile phase A: 0.1% trifluoroacetic acid Mobile phase B: 0.1% trifluoroacetic acid in acetonitrile
Flow Rate:	0.3 mL/min
Temperature:	60°C
Detector:	214nm
Injection Volume:	5 µL

### Ordering Information

Product name	P/N	Specification
Blossmate® C4	00608-31010	2.1×50mm, 3.5µm
Blossmate® C4	00608-31012	2.1×100mm, 3.5µm

## Blossmate® Phenyl

Welch Materials has launched a new Blossmate® Phenyl column to fully meet the needs of detecting various biological samples, providing customers with higher accuracy, faster peak output, lower cost and a wider range of protein measurement columns.

### Features:

**Higher Accuracy:** Porous particle silica packing (3.5µm) with large pore size (450Å) to improve protein resolution.

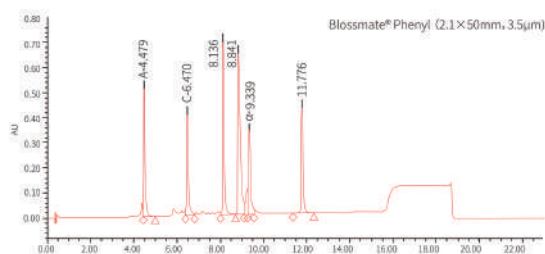
**Faster peak times:** Compared to columns packed with the same size fully porous particles, the analysis time is shorter.

**Lower cost:** Stable porous layer packed bed and 2µm inlet frit prevent inlet clogging, thus extending column life.

**Wider testing range:** measurable protein molecular weight 12kDa-250kDa.

Product name	Bonded phase	Particle size µm	Pore size Å	Specific surface area m <sup>2</sup> /g	Carbon load %	pH stability	Endcapped
Blossmate® Phenyl	Phenylsilane	3.5	450Å	15	1.0	1.5-10.0	Yes

### Separation of Six Proteins on Blossmate® Phenyl



Name	Retention time	Area	Height	Area%	Resolution	Plates	Tailing factor
RNase A	4.479	2740222	521395	15.26	n.a.	18343	n.a.
Cytochrome c	6.470	2369215	412742	13.19	14.82	39592	n.a.
Lysozyme	8.136	3443765	700496	19.18	13.06	77448	2.30
Transferrin	8.841	4900384	664186	27.29	3.87	42062	n.a.
A-lactalbumin	9.339	2133699	337141	11.88	2.55	75760	n.a.
carbonic anhydrase	11.776	2370479	425492	13.20	16.90	113433	1.88

Column:	Blossmate® Phenyl
Mobile Phase:	Mobile phase A: 0.1% trifluoroacetic acid Mobile phase B: 0.1% trifluoroacetic acid in acetonitrile
Flow Rate:	0.3 mL/min
Temperature:	60°C
Detector:	220nm
Injection Volume:	5 µL

### Ordering Information

Product name	P/N	Specification
Blossmate® Phenyl	00609-31010	2.1x50mm, 3.5µm
Blossmate® Phenyl	00609-31012	2.1x100mm, 3.5µm