

Carbohydrate Analysis

Peak Resolution, Analysis Time, Value

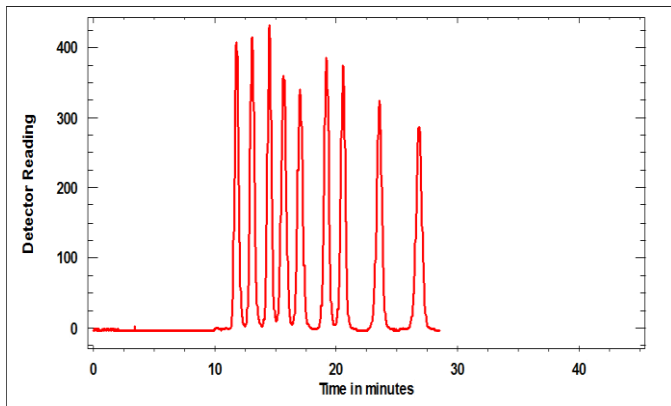
During the past 35 years, as Benson Company and Benson Polymeric, Inc., we have provided premium column packing materials and pre-packed columns to the major chromatography equipment manufacturers and supply distributors in the industry as well as direct sales through dealers. The primary objective of our company is to provide the highest quality products and technical services to our customers.

Benson's sole focus is to provide high quality polymeric product for HPLC. We are able to offer a complete line of columns at competitive pricing. Not only can we reduce your analysis costs, we also provide quick and knowledgeable service to our customers.

Applications: The chart below lists the typical types of standards that can be separated on Benson Polymeric columns. For specific recommendations on the column and method best suited to maximize the separation of your particular sample please contact our customer support staff at Benson Polymeric

Benson Column Description	Benson Part Number	Typical Applications
BP-100 Ca	1000-0	Corn syrup, sugar alcohols, sugars
BP-100 Ca	1040-0	USP analysis of mannitol and sorbitol
BP-100 Ca	1070-0	Corn syrup, sugar alcohols, sugars
BP-200 Ca	1500-0	Corn syrup, sugar alcohols, sugars
BP-200 Na	1550-0	Oligosaccharide analysis up to DP11 in samples containing salt
BP-200 Ag	1600-0	Oligosaccharide analysis up to DP11
BP-100 Pb	1200-0	Biomass derived sugar samples, lactose, sucrose, maltose
BP-800 Ca	8000-0	Sweetner analysis, monosaccharides, high fructose corn syrup, di-, tri, and tetrasaccharides, sugar alcohols, mannitol and sorbitol
BP-800 K	8300-0	Mono-, di-, trisaccharide analysis in corn syrup and brewing wort samples, glucose, maltose, maltotriose, betaine.
BP-800 Na	8700-0	Molasses and other sugars in high salt sample
BP-800 Pb	8200-0	Cellulose-derived monosaccharides, pentoses and hexoses from wood products, dairy products (sucrose, lactose, fructose)

Many carbohydrate samples can be separated using calcium form columns (BP-100 Ca and BP-800 Ca). A typical sample separation on the BP-100 Ca column is shown below.



<i>Eluent:</i>	<i>DI H₂O</i>	<i>Sample: 1 - Maltotriose</i>
<i>Flow Rate:</i>	<i>0.4 mL/min</i>	<i>2 - Maltose</i>
<i>Pressure:</i>	<i>250 psi</i>	<i>3 - Lactulose</i>
<i>Detection:</i>	<i>RI</i>	<i>4 - Glucose</i>
<i>Temperature:</i>	<i>80C</i>	<i>5 - Xylose</i>
<i>Sample Size:</i>	<i>20 uL, 30 mg/ml</i>	<i>6 - Arabinose</i>
		<i>7 - Ribitol</i>
		<i>8 - Arabitol</i>
		<i>9 - Xylitol</i>

Polymer Description: Benson Polymeric offers a wide variety of columns for the analysis of carbohydrates. All of our columns are packed with polymeric materials specifically designed to maximize your separation needs. Benson Polymeric columns utilize a variety of separation mechanisms that allow carbohydrates to be separated without the need of gradients. By altering the ionic form of our polymers (calcium, lead, sodium, silver, and potassium) specific carbohydrate mixtures can be separated (see Applications section) by simply using water as your mobile phase.

Another technique Benson Polymeric uses to maximize your separation is to offer a range of cross-linked polymers (see Polymer Description). The degree of cross-linkage determines the porosity of the polymers which can be used to enhance certain separations. Benson Polymeric recommends using column ovens in combination with our columns since the best separations are usually obtained at elevated temperatures (typical range 30 – 90° Celsius).

Polymer Description	Part Number	Cross-linkage	Particle Size	Cationic Form	MW Exclusion Limit	Wet Capacity (meq/ml)	Nominal Density (g/ml)
BP-100, Ca ⁺⁺	4100-0	6	9	Calcium	1200	1.4	0.8
BP-800 Ca ⁺⁺	4105-0	8	9	Calcium	1000	1.7	0.8
BP-100, Na ⁺	4120-0	6	9	Sodium	1200	1.4	0.8
BP-800 Na ⁺	4125-0	8	9	Sodium	1000	1.7	0.8
BP-100, Pb ⁺⁺	4130-0	6	9	Lead	1200	1.4	0.8
BP-800 Pb ⁺	4135-0	8	9	Lead	1000	1.7	0.8
BP-100, Ag ⁺	4140-0	6	9	Silver	1200	1.4	0.8
BP-100, K ⁺	4150-0	6	9	Potassium	1200	1.4	0.8
BP-800 K ⁺	4155-0	8	9	Potassium	1000	1.7	0.8
BP-200, Ca ⁺⁺	4200-0	4	16	Calcium	1400	1.1	0.8
BP-200, Na ⁺	4210-0	4	16	Sodium	1400	1.1	0.8
BP-200, Ag ⁺	4240-0	4	16	Silver	1400	1.1	0.8

Column Comparison Chart: Benson Polymeric offers a complete line of high quality and cost effective columns for analysis of carbohydrates. The chart below lists our recommended replacement columns for polymeric columns offered by other suppliers. For specific recommendations on the column and method best suited to maximize the separation of your particular sample please do not hesitate to contact the support staff at Benson Polymeric.

Benson Column Description	Benson Part Number	Column Size Ionic Form	Bio-Rad (Aminex) Part Number	Phenomenex (Rezex) Part Number	Agilent	Varian (Metacarb) Part Number	Trans-genomic Part Number	Waters Hamilton Alltech Part Number	Shodex Part Number
BP-100 Ca	1000-0	300 x 7.8 Calcium							
BP-100 Ca	1070-0	300 x 6.5 Calcium			PL1170-6850		CHO-99-9753	Waters WAT085188 Alltech 70057	
BP-200 Ca	1500-0	300 x 7.8 Calcium	125-0096					Hamilton 79432	
BP-200 Na	1550-0	300 x 7.8 Sodium		00P-0137-NO	PL1171-6140	A5238	CHO-99-9850		
BP-200 Ag	1600-0	300 x 7.8 Silver	125-0097	00P-0133-NO		A5223	CHO-99-9851		
BP-100 Pb	1200-0	300 x 7.8 Lead				A5220	CHO-99-9854		
BP-800 Ca	8000-0	300 x 7.8 Calcium	125-0095	00H-0130-KO	PL1170-6810	A5200 A5205	CHO-99-9860 CHO-99-9855	Hamilton 79436	F6378102
BP-800 Ca	8040-0	250 x 4.0 Calcium	125-0094		PL1570-5810	A5092	CHO-99-8453	Hamilton 79431	MN-431
BP-800 K	8300-0	300 x 7.8 Potassium	125-0142	00H-3252-KO	PL1170-6860	A5095	CHO-99-9862		
BP-800 H	8100-0	300 x 7.8 Hydrogen			PL1170-6830				
BP-800 Na	8700-0	300 x 7.8 Sodium	125-0143	00H-0136-KO	PL1170-6840	A5041	CHO-99-9863		F6378010
BP-800 Pb	8200-0	300 x 7.8 Lead	125-0098	00H-0135-KO	PL1170-6820	A5241	CHO-99-9864	Hamilton 79476	F6378105



Visit our Web Site for more column options!

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We understand choosing a column can be a difficult decision based on your unique sample, and we will take the steps necessary to guarantee a column will meet your specific needs.

Benson Polymeric offers several types of polymeric based columns for the analysis of carbohydrates, organic acids, and alcohols. The optimum choice of column is typically a combination of *Peak Resolution, Analysis Time and Value.*

We can help you choose a replacement column for your application, or recommend a column for a new assay. Please do not hesitate to contact us in regards to your specific separation needs.

