



Carbohydrates and Organic Acid Columns



Your Specialists in Chromatography

Company Profile

SepaChrom is the brainchild of the founders to create a dedicated reality, unique and able to support the **Chromatography users** optimizing their challenges.

Our Core competence is the manufacturing and trading of **High-Quality** products for **Chromatography**.

SepaChrom product portfolio includes a wide range of in-house manufactured **HPLC** Columns in both **Analytical** and **Preparative** scale, **Flash** cartridges & Instruments, and **Process** scale purification.

Our offer of products for Chromatography includes consumables and accessories, for both **HPLC** and **GC** techniques.

Our brands **Robusta**®, **Adamas**®, **Vydamas**®, **TMC**®, **Purezza**®, **Sepa-Bulk**® are only few of the product lines we propose to the **Chromatographers**.

Our Mission

Decades of experience of our team, combined with a range of High Quality selected products and the most efficient technological solutions, allows **SepaChrom** to be a reference to :

- **Pharma,**
- **Biotech,**
- **Chemical,**
- **Food and Beverage,**
- **Cosmetic,**
- **Environmental,**
- **Clinical**
- **Petrochemical**

industries, at **R&D** department as well **QC** laboratories and **Production**.

Our commitment is to provide the Highest Technical Support that Chromatographers expect from

Your Specialist in Chromatography



Customers in Mind

The success of **SepaChrom** depends by the complete **satisfaction** of our customers, and consequently by their success.

SepaChrom expertise result in a High-Quality support **pre & after** sales to the Chromatographic Users.

A world-wide Distributor Network will assure the users the best in class technical and commercial support to properly approach their Chromatography challenges.

This include a **fast delivery** of your products from our warehouse to everywhere.



For over 30 years Benson Polymeric, Inc., has provided premium polymeric packing materials and pre-packed columns to the analytical chemical analysis industry throughout the world. Benson Polymeric provides polymeric materials for a wide variety of applications, but we are primarily known for our Carbohydrate and Organic Acid Analysis columns. The main objective of our company is to provide the highest quality products and technical services to our customers. Since our sole focus is on the manufacturing of polymeric products for HPLC, we are able to offer outstanding consistency and value to our customers. Not only can we reduce your analysis costs, we also provide quick and knowledgeable service to our customers.



Carbohydrates

Benson Polymeric columns utilize a variety of separation mechanisms that allow carbohydrates to be separated without the need of gradients



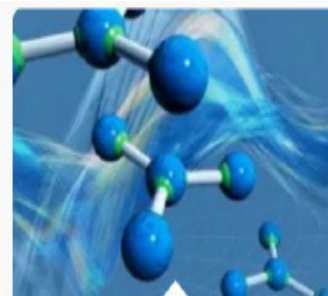
Organic Acids

Benson Polymeric offers a wide array of columns for the analysis of organic acids. All of our columns are packed with polymeric materials specifically designed to maximize your separation needs.



Applications

Benson Polymeric columns are highly versatile and can be used for applications ranging from food and beverage analysis to biofuels.



Compounds

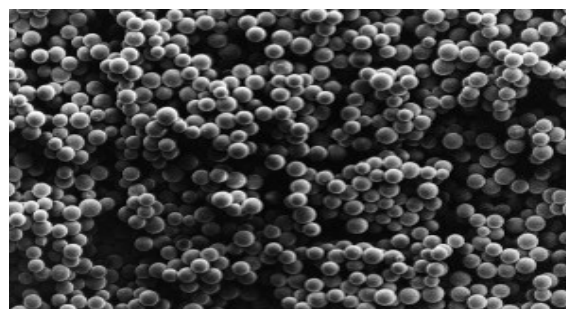
A number of compounds can be analyzed using Benson Polymeric columns. From Acetone to Xylose and many compounds in between. Our columns are perfect for maintaining quality and reliability.



Benson Polymeric Technology:

Our polymers are low cross-linked polystyrene-divinylbenzene co-polymers (gels). PS-DVB gels form the foundation of our column technology and are ideal for the analysis of many types of small molecules such as carbohydrates and organic acids.

We sulfonate our polymer to form the core of our technology. This charged gel is extremely versatile and can be further modified to enhance separations of different types of samples. Below is a diagram of a sulfonated gel. In this diagram, the H (hydrogen) represents the "metal" ligand attached to the sulfone group. Other metals such as calcium, lead, sodium, potassium and silver can be alternatively attached to affect the selectivity of the column.



Polystyrene-divinylbenzene co-polymers (gels)

Retention Times

The retention times chart is a partial listing of the retention times of common organic acids tested on Benson Polymeric columns using typical test conditions (0.6 ml/min, 60°C, 0.01N sulfuric acid).

The retention time of organic acids can be influenced using acid strength, temperature, and column choice. By choosing the proper combination of the test conditions and column, your sample separation will be optimized. For specific recommendations on the column and test conditions best suited to maximize your particular sample please do not hesitate to contact our Technical Support at info@sepachrom.com

| Compound | BP-OA | BP-100-H |
|------------|-------------|-------------|
| | Item BL0053 | Item BL0021 |
| Citric | 7.5 | 8.6 |
| Tartaric | 8.0 | 9.5 |
| Maleic | 8.2 | 9.0 |
| Aconitic | 8.6 | 10.7 |
| Malic | 8.8 | 10.3 |
| Glycoxylic | 9.2 | 10.3 |
| Pyruvic | 9.2 | 9.9 |
| Malonic | 9.3 | 10.7 |
| Succinic | 10.4 | 12.2 |
| Shikimic | 10.5 | 12.9 |
| Glycerol | 11.4 | 12.9 |

| Compound | BP-OA | BP-100-H |
|-----------|-------------|-------------|
| | Item BL0053 | Item BL0021 |
| Fumaric | 11.5 | 14.7 |
| Lactic | 11.9 | 11.6 |
| Adipic | 12.5 | 15.8 |
| Formic | 12.9 | 13.9 |
| Acetic | 13.8 | 14.9 |
| Propionic | 15.8 | 17.4 |
| Methanol | 18.7 | 18.7 |
| Ethanol | 21.4 | 20.6 |
| Propanol | 25.9 | 22.2 |
| Butanol | 32.9 | 25.2 |

Column Comparison Table

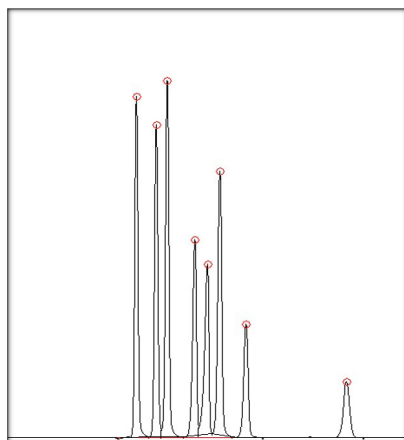
Column Comparison Chart: Benson Polymeric offers a complete line of high quality and cost effective columns for analysis of organic acids and carbohydrates. The cross reference table below lists our recommended replacement columns for polymeric columns offered by other suppliers. For specific recommendations on the column and method best suited to maximize the separation of your particular sample please do not hesitate to contact the [SepaChrom](#) Technical Support.

| Cross Reference Table | | | | | | | | | | |
|-----------------------|---------|------------------|------------------|----------------------------|-------------|-------------------|----------------------------|--------|----------------------|-----------------------------------|
| Description | Part.No | Column Size (mm) | Bio-Rad (Aminex) | Phenomenex (Rezex) | Agilent | Varian (Metacarb) | Transgenomic | Dionex | Shodex | Others |
| BP-OA | BL0056 | 250 X 4.6 | | | | | ICE-99-8461 | 064198 | | Hamilton 79476 |
| BP-OA | BL0055 | 100 X 7.8 | 125-0100 | 00D-0223-KO | | A5059 | ICE-99-5861 | | | |
| BP-OA | BL0053 | 300 X 7.8 | 125-0140 | 00H-0132-KO 00H-3252-KO | | A5210 | ICE-99-9861 ICE-99-9810 | 043197 | F6378100 F6378030 | Hamilton 79544 |
| BP-100-H | BL0021 | 300 X 7.8 | | | | A5215 | ICE-99-9850 | | | Alltech 9646 |
| BP-100-H Guard | BL0025 | 50 X 4.6 | | | | A5211 A5216 | CHO-99-3561 | 067842 | | |
| BP-OA Guard | BL0059 | 50 X 4.6 | | | | A5211 A5216 | CHO-99-3561 | 067842 | | |
| BP-100-Ca | BL0004 | 300 x 7.8 | | | | | | | | |
| BP-100-Ca | BL0064 | 300 x 6.5 | | | PL1F70-6850 | | CHO-99-9753 | | | Waters WAT085188 Alltech 70057 |
| BP-200-Ca | BL0050 | 300 x 7.8 | 125-0096 | | | | | | | Hamilton 79432 |
| BP-200-Na | BL0051 | 300 x 7.8 | | 00P-0137-NO | PL1171-6140 | A5238 | CHO-99-9850 | | | |
| BP-200-Ag | BL0052 | 300 x 7.8 | 125-0097 | 00P-0133-NO | | A5223 | CHO-99-9851 | | | |
| BP-100-Pb | BL0036 | 300 x 7.8 | | | | A5220 | CHO-99-9854 | | | |
| BP-800-Ca | BL0013 | 300 x 7.8 | 125-0095 | 00H-0130-KO | PL1170-6810 | A5200 A5205 | CHO-99-9860 CHO-99-9855 | | F6378102 | Hamilton 79436 |
| BP-800-Ca | BL0017 | 250 x 4.0 | 125-0094 | | PL1570-5810 | A5092 | CHO-99-8453 | | MN-431 | Hamilton 79431 |
| BP-800-K | BL0065 | 300 x 7.8 | 125-0142 | 00H-3252-KO | PL1170-6860 | A5095 | CHO-99-9862 | | | |
| BP-800-H | BL0003 | 300 x 7.8 | | | PL1170-6830 | | | | | |
| BP-800-Na | BL0034 | 300 x 7.8 | 125-0143 | 00H-0136-KO | PL1170-6840 | A5041 | CHO-99-9863 | | F6378010 | |
| BP-800-Pb | BL0041 | 300 x 7.8 | 125-0098 | 00H-0135-KO | PL1170-6820 | A5241 | CHO-99-9864 | | F6378105 | Hamilton 79476 |

| Column | Part.No | Typical Applications of Organic Acids Columns |
|-----------|---------|---|
| BP-OA | BL0056 | USP Analysis of Citric, Lactic and Acetic Acid |
| BP-OA | BL0055 | Rapid Screening of Fruit Samples such Graper Must, Ethanol, Acetic Acid, Glycerol, Fructose, Glucose |
| BP-OA | BL0053 | Organic Acids in Dairy Products, Food Additives, Flavor Indicators, Food Stability, Vitamin Content, Ascorbic Acid and Nutritional Analysis |
| BP-100-H | BL0021 | Organic Acids in Dairy Products, Food Additives, Flavor Indicators, Food Stability, Vitamin Content, Ascorbic Acid and Nutritional Analysis |
| BP-100-Ca | BL0004 | Corn Syrup, Sugar Alcohols, Sugars |
| BP-100-Ca | BL0009 | USP Analysis of Mannitol and Sorbitol |
| BP-100-Ca | BL0064 | Corn Syrup, Sugar Alcohols, Sugars |
| BP-200-Ca | BL0050 | Corn Syrup, Sugar Alcohols, Sugars |
| BP-200-Na | BL0051 | Oligosaccharide Analysis up to DP11 in Samples Containing Salts |
| BP-200-Ag | BL0052 | Oligosaccharide Analysis up to DP11 |
| BP-100-Pb | BL0036 | Biomass Derived Sugar Samples, Lactose, Sucrose, Maltose |
| BP-800-Ca | BL0013 | Sweetener Analysis, Monosaccharides, High Fructose Corn Syrup, di-tri & tetra-Saccharides, Sugar Alcohols, Mannitol and Sorbitol |
| BP-800-K | BL0065 | mono-di-tri-Saccharide Analysis in Corn Syrup and Brewing Wort Samples, Glucose, Maltose, Maltotriose, Betaine. |
| BP-800-Na | BL0034 | Molasses and other Sugars in High Salt Samples |
| BP-800-Pb | BL0041 | Cellulose-derived Monosaccharides, Pentose and Hexoses from Wood Products, Dairy Products (Sucrose, Lactose, Fructose) |

| Analysis | Column | Form | Particle Size | Cross-linkage | USP | Dimension | Stock N# |
|-----------------------------|-----------|-----------|---------------|---------------|-------------------|-------------------|----------|
| Carbohydrates | BP-100-Ca | Calcium | 9μ | 6% | USP L19 | 300 x 7.8mm | BL0004 |
| | BP-100-Ca | Calcium | 9μ | 6% | USP L19 | 100 x 7.8mm | BL0007 |
| | BP-100-Ca | Calcium | 9μ | 6% | USP L19 | 250 x 4.6mm | BL0008 |
| | BP-100-Ca | Calcium | | 6% | USP L19 | Guard 50 x 4.6mm* | BL0012 |
| | BP-800-Ca | Calcium | 9μ | 8% | USP L19 | 300 x 7.8mm | BL0013 |
| | BP-800-Ca | Calcium | 9μ | 8% | USP L19 | 100 x 7.8mm | BL0015 |
| | BP-800-Ca | Calcium | 9μ | 8% | USP L19 | 250 x 4.6mm | BL0016 |
| | BP-800-Ca | Calcium | | 8% | USP L19 | Guard 50 x 4.6mm* | BL0020 |
| | BP-100-Na | Sodium | 9μ | 6% | USP L58 | 300 x 7.8mm | BL0032 |
| | BP-100-Na | Sodium | | 6% | USP L58 | Guard 50 x 4.6mm* | BL0033 |
| | BP-800-Na | Sodium | 9μ | 8% | USP L58 | 300 x 7.8mm | BL0034 |
| | BP-800-Na | Sodium | | 8% | USP L58 | Guard 50 x 4.6mm* | BL0035 |
| | BP-100-Pb | Lead | 9μ | 6% | USP L34 | 300 x 7.8mm | BL0036 |
| | BP-100-Pb | Lead | 9μ | 6% | USP L34 | 250 x 4.6mm | BL0039 |
| | BP-100-Pb | Lead | | 6% | USP L34 | Guard 50 x 4.6mm* | BL0040 |
| | BP-800-Pb | Lead | 9μ | 8% | USP L34 | 300 x 7.8mm | BL0041 |
| | BP-800-Pb | Lead | 9μ | 8% | USP L34 | 250 x 4.6mm | BL0044 |
| | BP-800-Pb | Lead | | 8% | USP L34 | Guard 50 x 4.6mm* | BL0045 |
| | BP-100-K | Potassium | 9μ | 6% | - | 300 x 7.8mm | BL0046 |
| BP-100-K | Potassium | | 6% | - | Guard 50 x 4.6mm* | BL0047 | |
| BP-100-Ag | Silver | 9μ | 6% | - | 300 x 7.8mm | BL0048 | |
| BP-100-Ag | Silver | | 6% | - | Guard 50 x 4.6mm* | BL0049 | |
| Carbohydrate & Organic Acid | BP-100-H | Hydrogen | 9μ | 6% | USP L17 | 300 x 7.8mm | BL0021 |
| | BP-100-H | Hydrogen | 9μ | 6% | USP L17 | 150 x 7.8mm | BL0022 |
| | BP-100-H | Hydrogen | 9μ | 6% | USP L17 | 150 x 2.0mm | BL0024 |
| | BP-100-H | Hydrogen | | 6% | USP L17 | Guard 50 x 4.6mm* | BL0025 |
| | BP-800-H | Hydrogen | 9μ | 8% | USP L17 | 300 x 7.8mm | BL0003 |
| | BP-800-H | Hydrogen | 9μ | 8% | USP L17 | 150 x 7.8mm | BL0026 |
| | BP-800-H | Hydrogen | 9μ | 8% | USP L17 | 250 x 4.6mm | BL0027 |
| | BP-800-H | Hydrogen | 9μ | 8% | USP L17 | 150 x 2.0mm | BL0030 |
| | BP-800-H | Hydrogen | | 8% | USP L17 | Guard 50 x 4.6mm* | BL0031 |
| Organic Acid | BP-OA | Hydrogen | 9μ | 8% | USP L17 | 300 x 7.8mm | BL0053 |
| | BP-OA | Hydrogen | 9μ | 8% | USP L17 | 100 x 7.8mm | BL0055 |
| | BP-OA | Hydrogen | 9μ | 8% | USP L17 | 250 x 4.6mm | BL0056 |
| | BP-OA | Hydrogen | 9μ | 8% | USP L17 | 150 x 4.6mm | BL0057 |
| | BP-OA | Hydrogen | | 8% | USP L17 | Guard 50 x 4.6mm* | BL0059 |

Fermentation Analysis



Part.No **BL0003**
BP-800 H 300x7.8mm

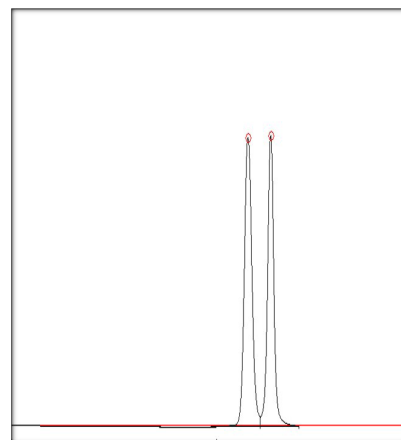
Analysis Conditions:

Eluent : 0.001 N H₂SO₄
Flow Rate : 0.6 ml/min
Detector : UV 210 nm
Temperature : 50°C

Sample:

1. Maltose : 8.03 min
2. Glucose : 9.29 min
3. Fructose : 9.98 min
4. Succinic Acid : 11.71 min
5. Glycerol : 12.43 min
6. Lactic Acid : 13.21 min
7. Acetic Acid : 14.84 min
8. Ethanol : 21.11 min

Trehalose Analysis



Part.No **BL0004**
BP-100 Ca 300x7.8mm

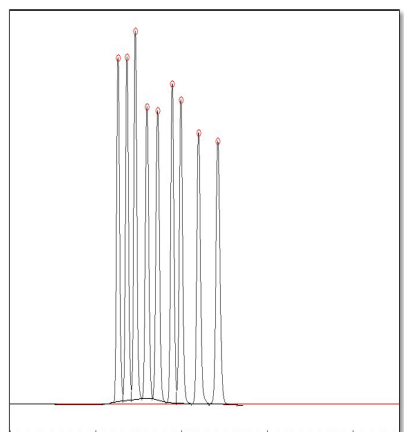
Analysis Conditions:

Eluent : DDI H₂O
Flow Rate : 0.4 ml/min
Detector : Refractive Index
Temperature : 80°C

Sample:

1. Maltotriose : 11.50 min
2. Trehalose : 12.61 min

Complex Sugar and Sugar Alcohol Analysis



Part.No **BL0004**
BP-100 Ca 300x7.8mm

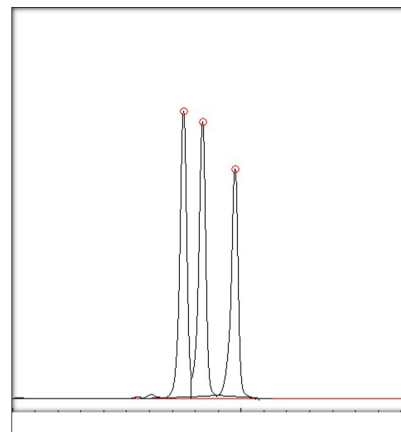
Analysis Conditions:

Eluent : DDI H₂O
Flow Rate : 0.4 ml/min
Detector : Refractive Index
Temperature : 80°C

Sample:

1. Maltotriose : 12.54 min
2. Maltose : 13.58 min
3. Lactulose : 14.55 min
4. Glucose : 15.91 min
5. Xylose : 17.15 min
6. Arabinose : 18.86 min
7. Ribitol : 19.86 min
8. Arabitol : 21.92 min
9. Xylitol : 24.16 min

DP4, DP3 and DP2 Analysis



Part.No **BL0032**
BP-100 Na 300x7.8mm

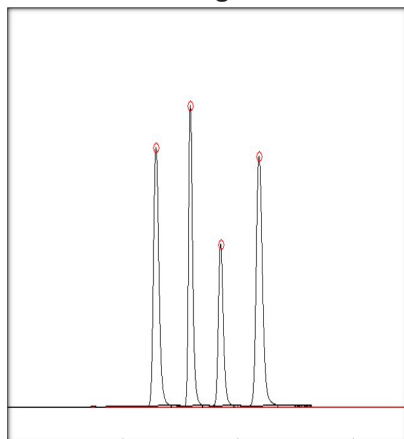
Analysis Conditions:

Eluent : DDI H₂O
Flow Rate : 0.5 ml/min
Detector : Refractive Index
Temperature : 80°C

Sample:

1. Maltotetraose : 7.45 min
2. Maltotriose : 8.29 min
3. Maltose : 9.71 min

Sugar Alcohol Analysis



Part.No **BL0013**
BP-800 Ca 300x7.8mm

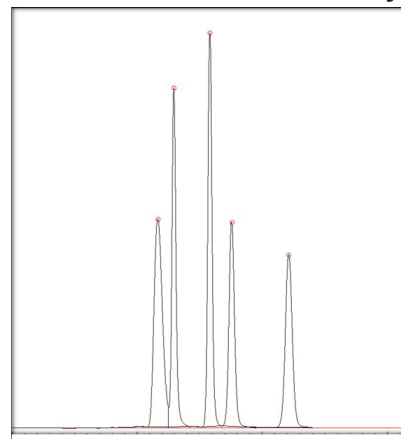
Analysis Conditions:

Eluent : DDI H₂O
Flow Rate : 0.6 ml/min
Detector : Refractive Index
Temperature : 80°C

Sample:

1. meso-Erythritol : 12.82 min
2. Maltitol : 15.81 min
3. Arabitol : 18.43 min
4. Galactitol : 21.77 min

Inositol Analysis



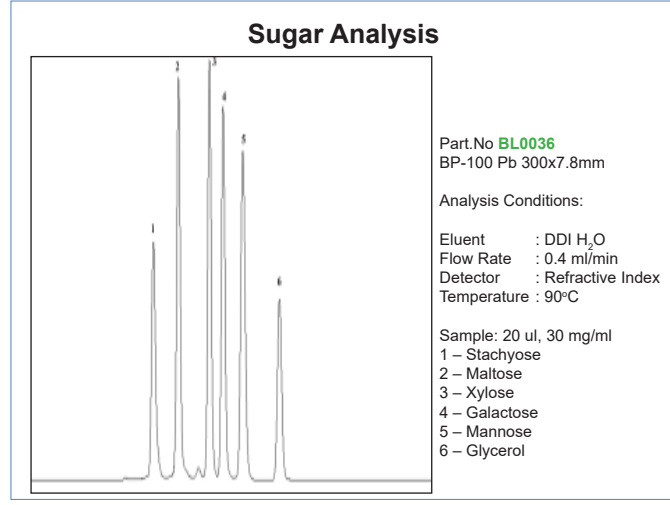
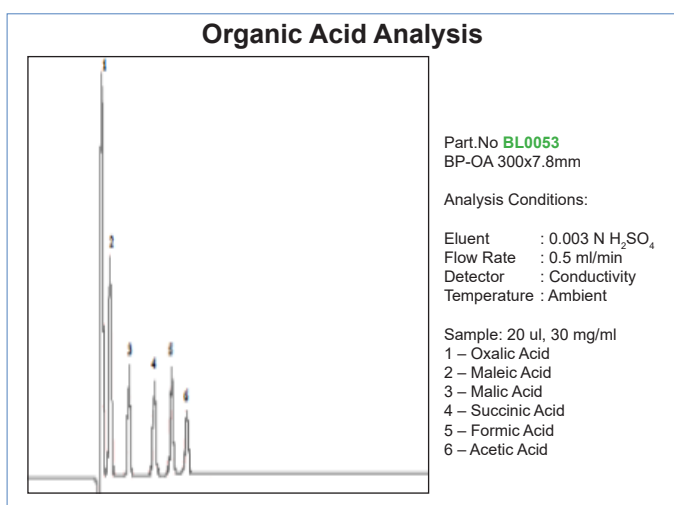
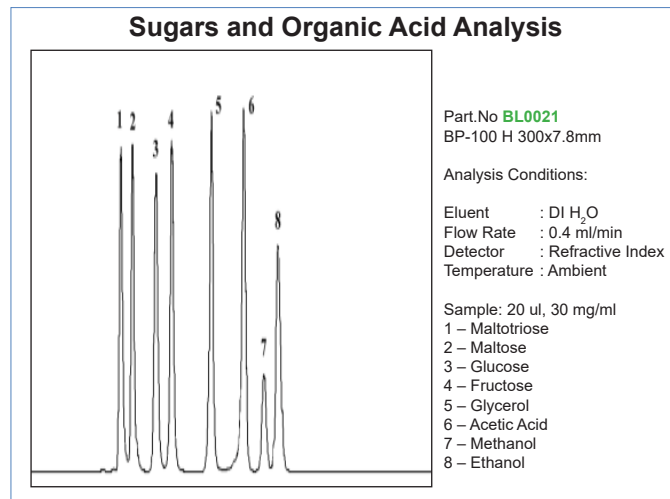
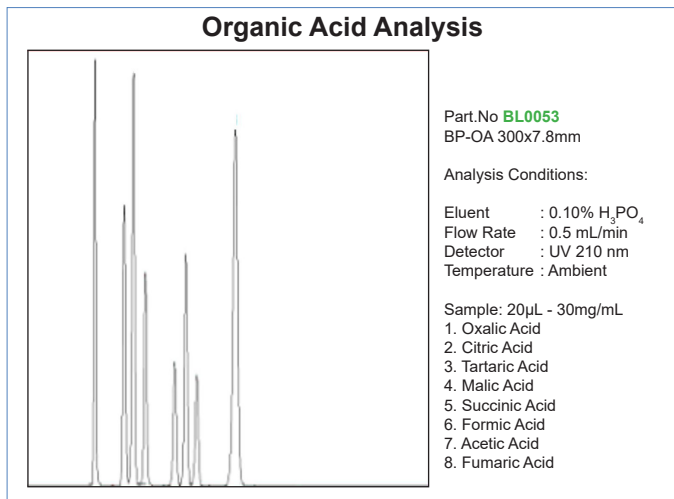
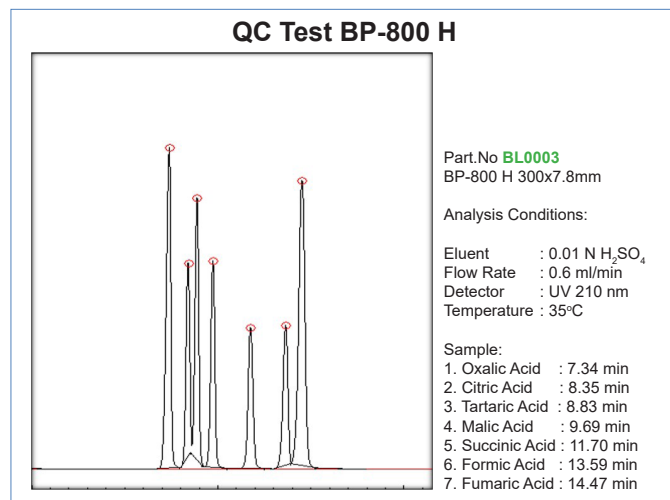
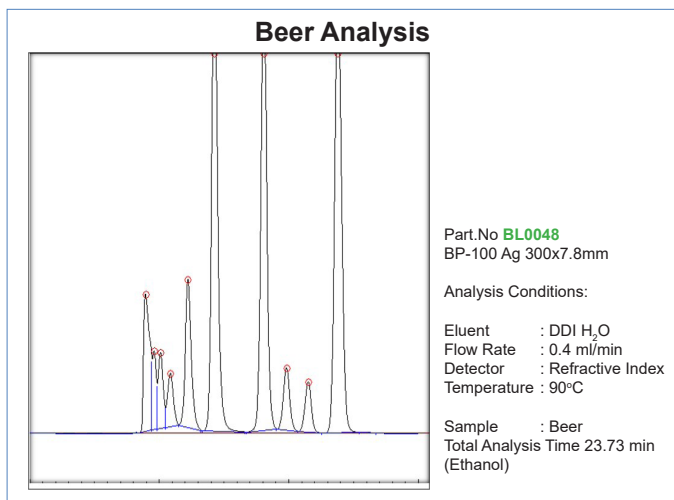
Part.No **BL0013**
BP-800 Ca 300x7.8mm

Analysis Conditions:

Eluent : DDI H₂O
Flow Rate : 0.6 ml/min
Detector : Refractive Index
Temperature : 85°C

Sample:

1. Mannose : 11.61 min
2. myo-Inositol : 12.89 min
3. Glycerol : 15.77 min
4. Mannitol : 17.51 min
5. Sorbitol : 22.07 min



Other products available from SepaChrom

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 HPLC Silica Based Columns for Large Molecules Separation
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 Ion Chromatography Columns for Anions and Cations Analysis

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ROBUSTA®

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 Wide Range Porosity (30Å- 2500Å) and Particle Size (10µ-200µ)
 Polymer Based Resin for Reversed Phase and Ion Exchange Chromatography

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10mm - 50mmID Packed Preparative Columns for Lab Scale Purification packed by SepaChrom
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 OEM Packed Preparative Columns
 Scale-up Method Development & Custom Packing Service

ROBUSTA®

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FLASH

Instruments for Flash and Prep Chromatography up to 825mL/min & 400 bar pressure
 Integrated ELSD & MS Simple Quad Detector for Flash Purification
 TLC Plates and Accessories for Flash Chromatography
 A Complete Range of Flash Columns for All Existing Flash Instruments

purezza

Advion Interchim

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 Accessories for SPE & Syringe Filters

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SepaChrom Hydrogen, Nitrogen and Air Generators for GC
 SepaChrom Nitrogen Generators for LC-MS
 Automated Sample Evaporators for Lab Scale Purification
 Interchim Advion CMS Compact Mass Spectrometer Detector

CONSUMABLE

Autosampler Vials for HPLC, IC e GC
 Head Space and Sampling Vials
 SS & PEEK Tubing, Fittings, Ferrule & Valves
 Syringes and Septa for GC
 Traps for GC Gas Lines