

HyperCHROM

Liquid Chromatography Columns



EPCC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

Analytical Technologies Limited

An ISO 9001 Certified Company

www.analyticalgroup.net

►► HPLC Phases and Applications

Common Name	Functional Group	Normal Phase	Reversed Phase	Ion Exchange	Applications
ODS	-C ₁₈ H ₁₇				The least polar in the alkyl-bonded phases. Used widely in pharmaceutical, environmental etc.
C8	-C ₈ H ₁₇		√		Recommended for compounds strongly retained on C18 phases.
C4	-C ₄ H ₉		√		Shorter retention than C8 and C18.
C1	-(CH ₃) ₃		√		The least retentive in all alkyl group bonded phases. Typically used for moderate polar and multi-functional compounds.
NH ₂	-(CH ₂) ₉ NH ₂	√	√	√	Alternative selectivity to silica. Analysis of saccharide or other polar compounds in reversed phase some organic acid can be separated using buffers and organic modifiers.
SiO ₂	-OH				Separation of non-polar and moderate polar compounds.

►► Column Selection Guide

Description	Polar Size (Å°)	Particle Sizes (µm)	Pore Volume (mL/g)	Surface Area (m ² /g)	% of Carbon	End-Capping
HyperCHROM ODS-BP	120	3,5,10,15	1.0	300	15	Yes
HyperCHROM ODS-AP	120	3,5,10,15	1.0	300	17	Yes
HyperCHROM300A ODS-AP	300	3,5,10,15	0.9	100	3	Yes
HyperCHROM C8	120	3,5,10,15	1.0	300	11	Yes
HyperCHROM 300A C8	300	3,5,10,15	0.9	100	5	Yes
HyperCHROM C4	120	3,5,10,15	1.0	300	8	Yes
HyperCHROM C4	300	3,5,10,15	0.9	100	3	Yes
HyperCHROM C1	120	3,5,10,15	1.0	300	5	/
HyperCHROM 300A C1	300	3,5,10,15	0.9	100	2	/
HyperCHROM NH ₂	120	3,5,10,15	1.0	300	4	No



►► Ordering Information

Description	Particle Size (µm)	Size I.D. (mm)	Part No.
Analytical ODS -BP	5	4.6 x 150	0103-244
	5	4.6 x 200	0103-245
	5	4.6 x 250	0103-247
	5	6 x 150	0103-264
	10	4.6 x 150	0103-344
	10	4.6 x 200	0103-345
	10	4.6 x 250	0103-347
	10	10 x 250	0103-387
	10	20 x 250	0103-397
	10	30 x 250	0103-3A7
	10	40 x 250	0103-3C7
	10	50 x 250	0103-3E7
Analytical ODS -AP	5	4.6 x 150	0102-244
	5	4.6 x 200	0102-245
	5	4.6 x 250	0102-247
	5	6.0 x 150	0102-264
	10	4.6 x 150	0102-344
	10	4.6 x 200	0102-345
	10	4.6 x 250	0102-347
	10	10 x 250	0102-387
	10	20 x 250	0102-397
	10	30 x 250	0102-3A7
	10	40 x 250	0102-3C7
	10	50 x 250	0102-3E7
Analytical 300A ODS -AP	5	4.6 x 150	0112-244
	5	4.6 x 200	0112-245
	5	4.6 x 250	0112-247
	10	10 x 250	0112-387
	10	20 x 250	0112-397
	10	30 x 250	0112-3A7
	10	40 x 250	0112-3C7
	10	50 x 250	0112-3E7

Technical information contained in this publication is for reference purposes

Only and is subject to change without notice.

Analytical C8	5	4.6 x 150	0105-244
	5	4.6 x 200	0105-245
	5	4.6 x 250	0105-247
	5	6.0 x 150	0105-264
	10	4.6 x 150	0105-344
	10	4.6 x 200	0105-345
	10	4.6 x 250	0105-347
Analytical C4	5	4.6 x 150	0106-244
	5	4.6 x 200	0106-245
	5	4.6 x 250	0106-247
	10	4.6 x 150	0106-344
	10	4.6 x 200	0106-345

Analytical C4	5	4.6 x 150	0106-244
	5	4.6 x 200	0106-245
	5	4.6 x 250	0106-247
	10	4.6 x 150	0106-344
	10	4.6 x 200	0106-345
Analytical C1	10	4.6 x 250	0106-347
	5	4.6 x 150	0107-244
	5	4.6 x 200	0107-245
	5	4.6 x 250	0107-247
	10	4.6 x 200	0107-345
Analytical NH ₂	10	4.6 x 250	0107-347
	5	4.6 x 150	0104-244
	5	4.6 x 200	0104-245
	5	4.6 x 250	0104-247
	10	4.6 x 150	0104-344
	10	4.6 x 200	0104-345
Analytical SiO ₂	10	4.6 x 250	0104-347
	5	4.6 x 150	0101-244
	5	4.6 x 200	0101-245
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	10	4.6 x 150	0101-344
	10	4.6 x 200	0101-345
	10	4.6 x 250	0101-347

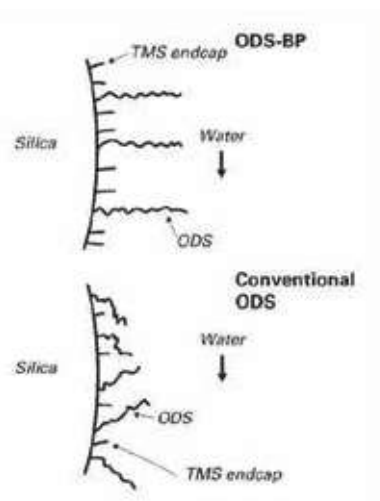
Other pore sizes, column dimensions are available. please call Customer Service for more informatoion.

►► HyperCHROM ODS-BP

HyperCHROM ODS-BP phases are designed to show extended selectivity for hydrophilic and polar compounds which are either not or poorly retained on other phases. A proprietary modification technique avoids the collapse of the C18 chains which conventional ODS-phases show at high water contents in the mobile phase, even if pure water is used. typical applications are separations of biomolecules and mtabolites such as oligosaccharides,amino acids, small peptides, nucleotides and organic acids.

HyperCHROM ODS-BP phases are fully end-capped and show smilar selectivity as conventional C18 phases when being used for separation of hydrophobic compounds with typical reversed phase eluents.

HyperCHROM ODS-BP phases show stable baselines and high sensitivity even under neutral pH conditions and without buffer or counterion additives, which makes them appear especially suited for hyphemated techniques like LC-MS, where such additives disturb the detection.

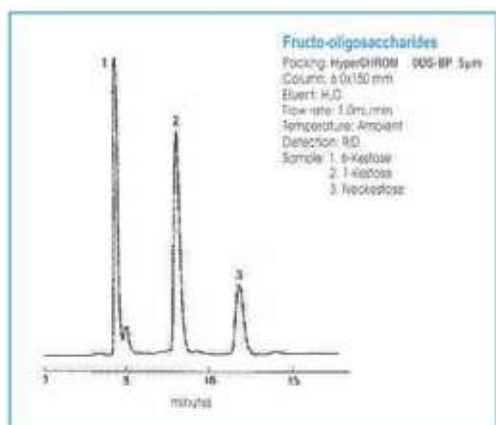
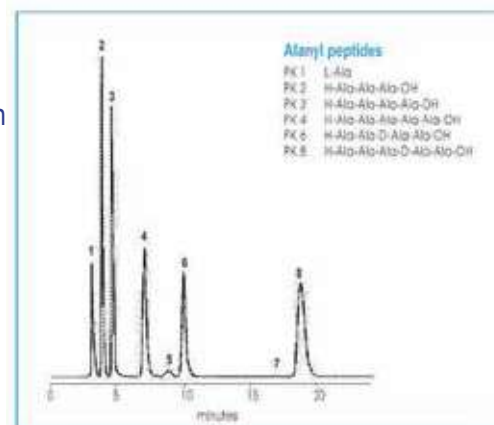


- Suitable hydrophilic compounds separation
- Strong retention in aqueous condition
- Longer lifetime in aqueous eluents
- Different selectivity from ODS-AP
- Enhanced mechanical stability
- Suitable for Dynamic Axial Compression Columns

Alanine and its oligopeptides are separated on analytical ODS-BP using 100% water as eluent. The elution sequence corresponds with the number of amino acid units included in the each peptide.

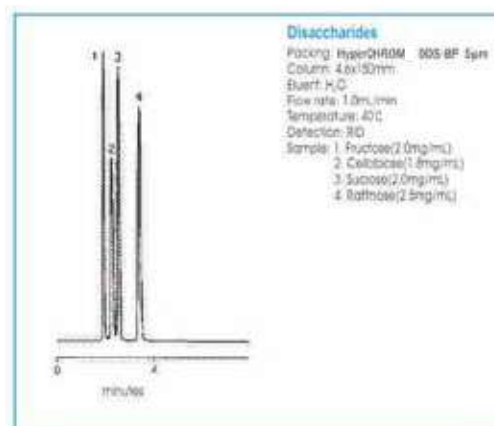
The diastereoisomer which contains the unnatural D-Ala in its structure shows a different retention time from the corresponding all-L-Ala peptide with the same number of amino acid residue.

peptides were eluted on Analytical ODS-BP (6.0x150mm) with H₂O+ Flow are: 1mL/min, Detection: UV @ 214nm

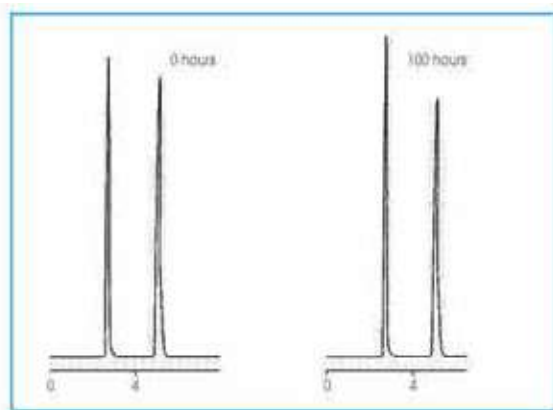


1-Kestose, 6-Kestose and Neokestose are position diastereoisomers which have the same molecular weight and are built up by the same monosaccharides, but they differ in the bonding position between sucrose and fructose. Analytical ODS-BP is sensitive to such small differences.

Disaccharides such as cellobiose and sucrose can be efficiently separated by Analytical ODS-BP. These disaccharides are composed of different monosaccharide units and exhibit different hydrophobicity. An analytical ODS-BP is capable of recognizing such a small differences.



►► Intensity of Hydrophobic Interaction of ODS-BP

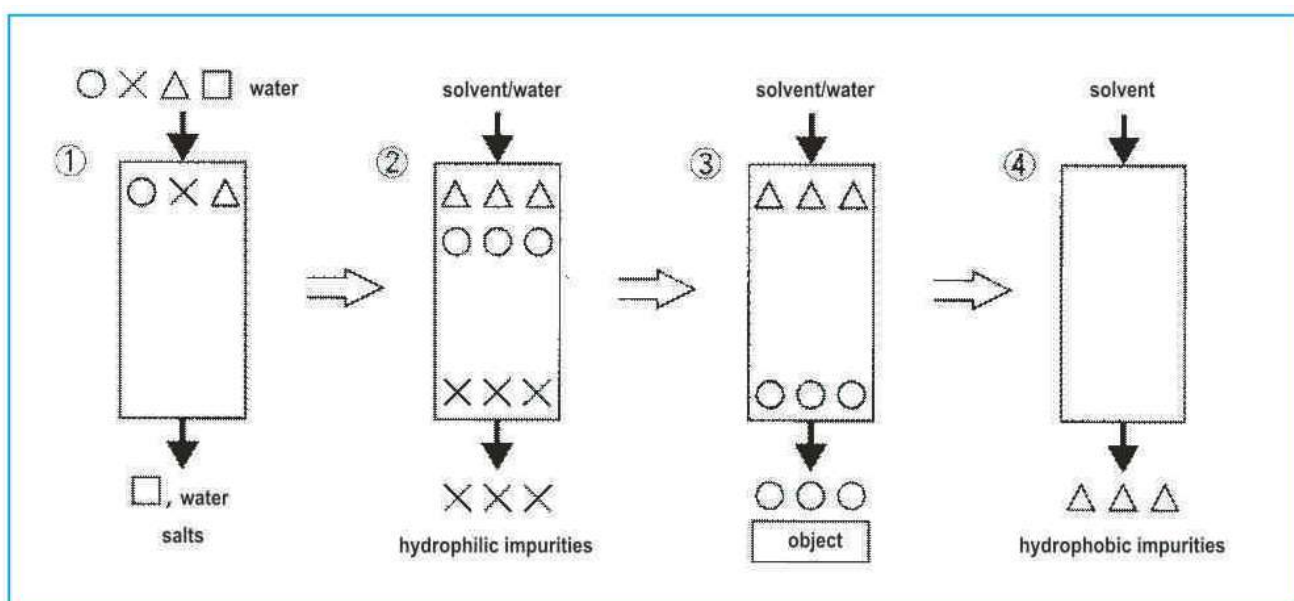


	0 hours	After 100 hours
Pyridine k _{py}	0.704	0.686
Phenol k _{ph}	2.129	2.080
Separation α	3.024	3.032

There is no evidence of phase collapse of Analytical ODS-BP with pure water as eluent. The test chromatogram of the pyridine/phenol separations shows that after 100 hours washing with water there was no change in selectivity or retention behavior.

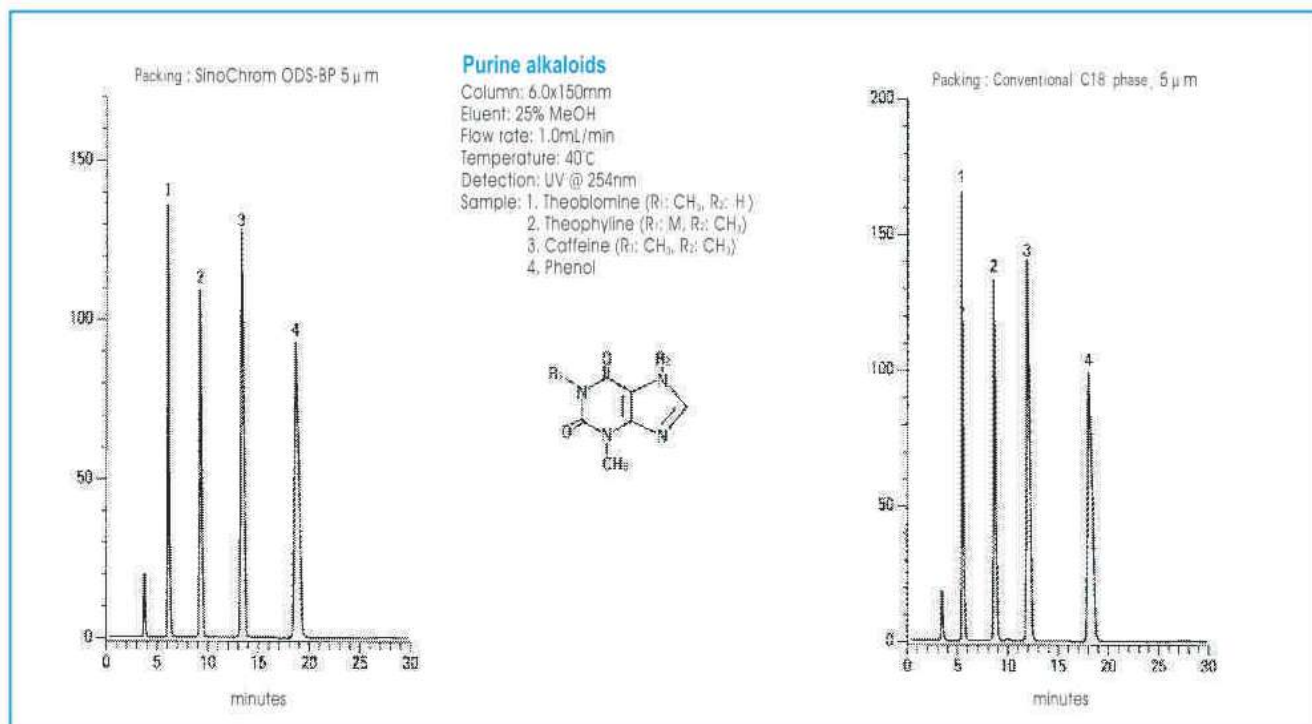
►► ODS-BP Packings are Useful for Desaltation of Aqueous Solution

ODS-BP packings, as an alternative to ion exchangers are useful for desaltation of aqueous solutions. Desaltation, concentration and subsequent reversed phase separation can be done on one column. Water and inorganic compounds are eluted without retention and organic compounds including the object substance are strongly retained. The object and its impurities are eluted with a water / organic modifier setp gradient.

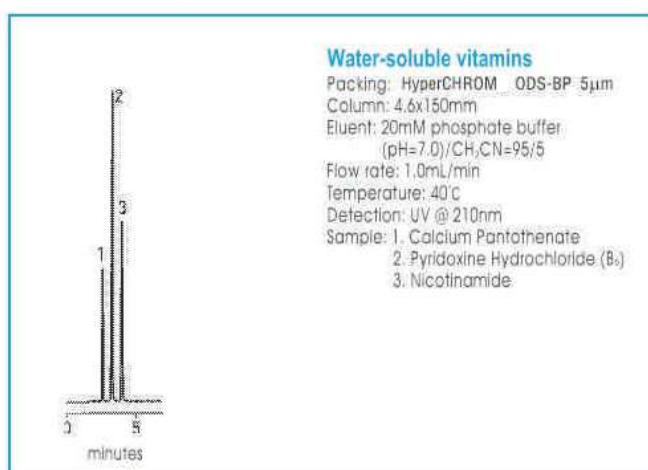
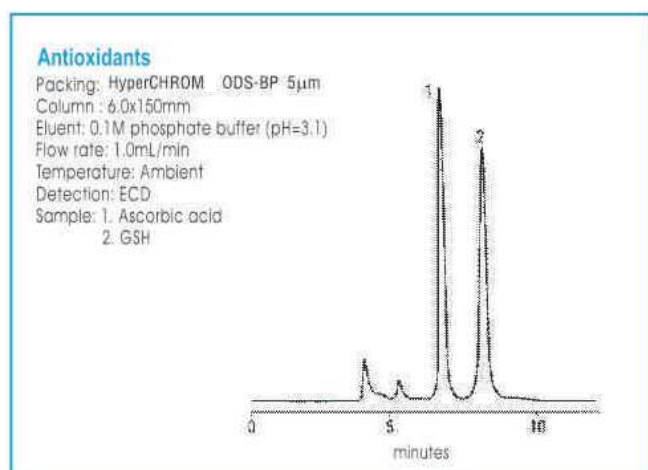


►► Difference between ODS-BP and Conventional C18 Phases

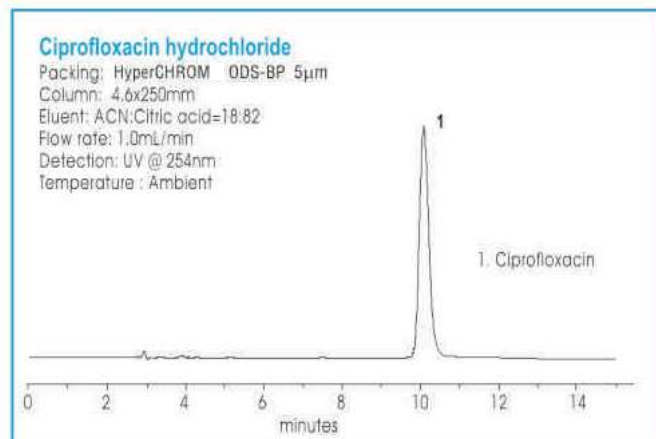
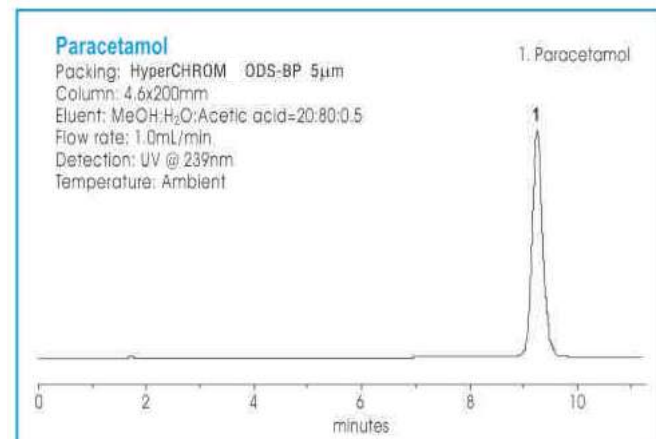
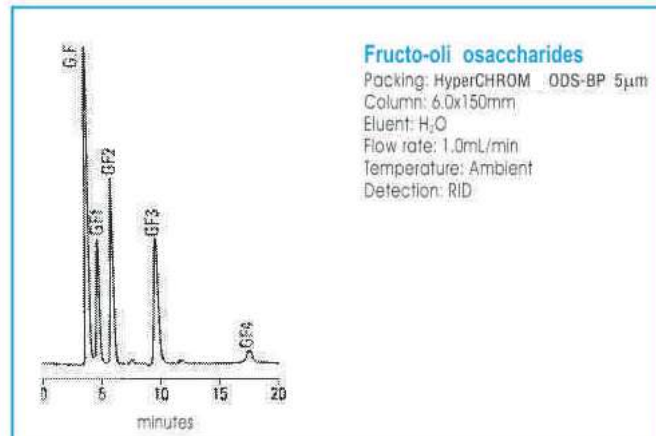
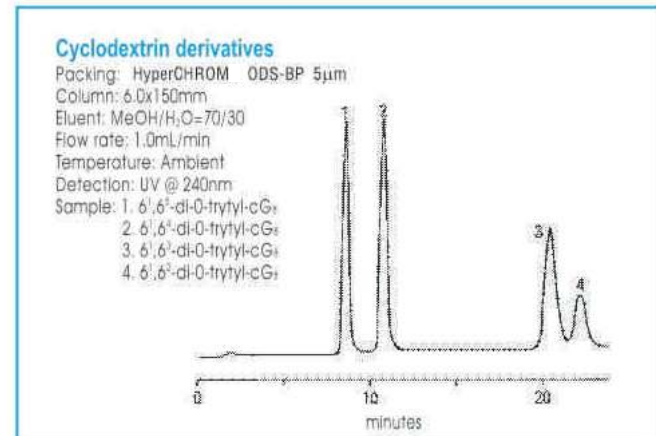
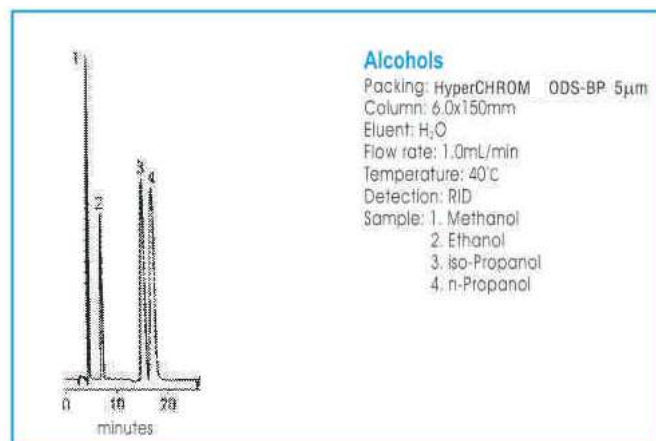
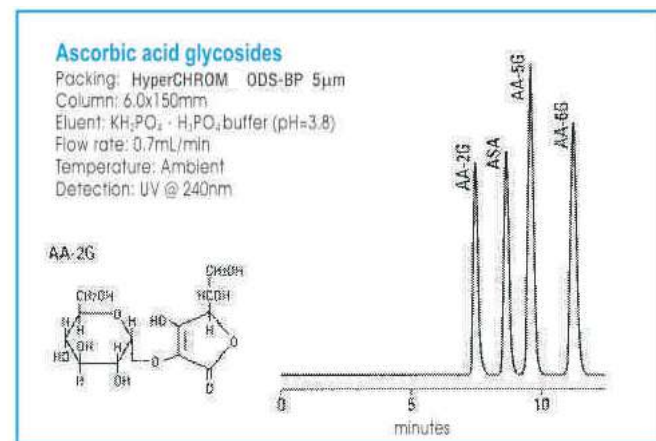
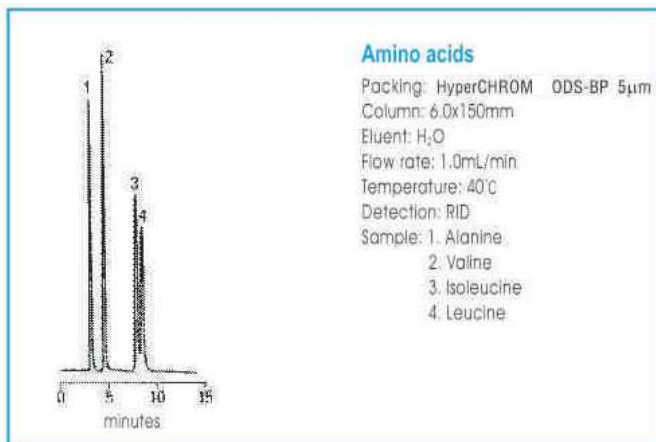
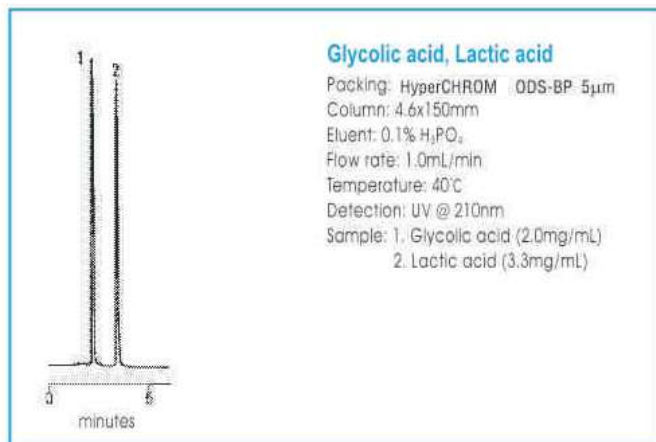
When typical reversed phase eluents are used ODS-BP phase in comparison to other conventional C18 phases show increased retention for hydrophilic compounds due to hydrophilic interaction, where as hydrophobic compounds are less retained. This effect can be used for the separation of two compounds with incidentally similar retention properties on conventional C18 phases, but different polarity.



►► Application



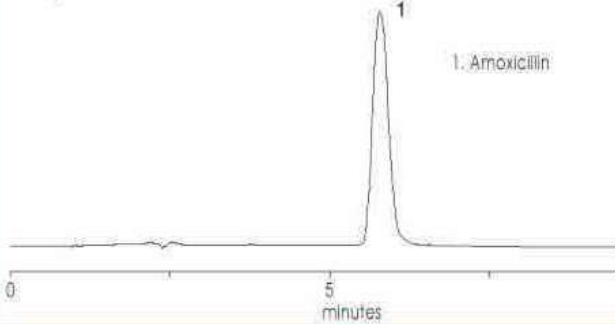
►► Application



►► Application

The assay of amoxicillin

Packing: HyperCHROM ODS-BP 5 μ m
 Column: 4.6x250mm
 Eluent: MeOH:H₂O=25:75
 Flow rate: 1.0mL/min
 Detection: UV @ 254nm
 Temperature: Ambient

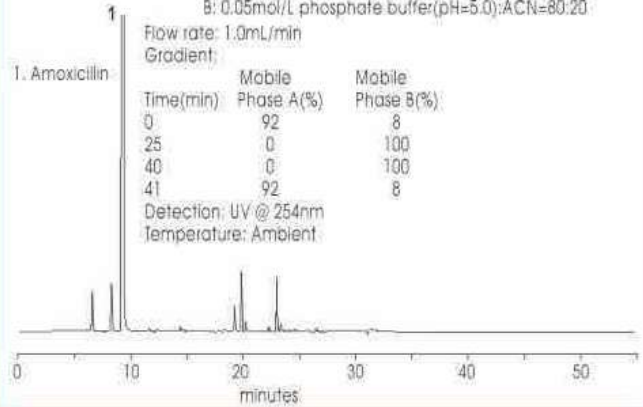


The related substance of amoxicillin sodium for injection

Packing: HyperCHROM ODS-BP 5 μ m
 Column: 4.6x200mm
 Eluent: A: 0.05mol/L phosphate buffer(pH=5.0):ACN=99:1
 B: 0.05mol/L phosphate buffer(pH=5.0):ACN=80:20
 Flow rate: 1.0mL/min
 Gradient:

Time(min)	Mobile Phase A(%)	Mobile Phase B(%)
0	92	8
25	0	100
40	0	100
41	92	8

Detection: UV @ 254nm
 Temperature: Ambient



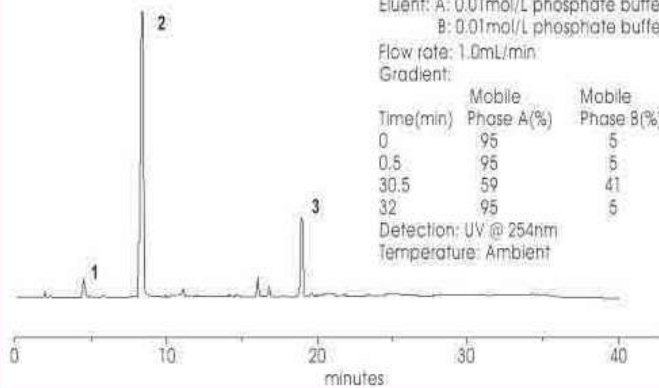
1. Clavulanate Potassium
2. Amoxicillin
3. amoxicillin dimer

The related substance of amoxicillin sodium-clavulanate potassium for injection

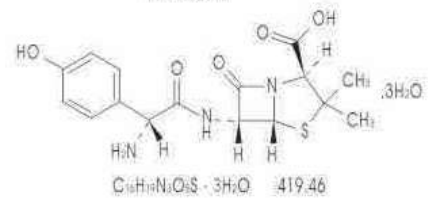
Packing: HyperCHROM ODS-BP 5 μ m
 Column: 4.6 x 200mm
 Eluent: A: 0.01mol/L phosphate buffer(pH=6.0)
 B: 0.01mol/L phosphate buffer(pH=6.0):ACN=20:80
 Flow rate: 1.0mL/min
 Gradient:

Time(min)	Mobile Phase A(%)	Mobile Phase B(%)
0	95	5
0.5	95	5
30.5	59	41
32	95	5

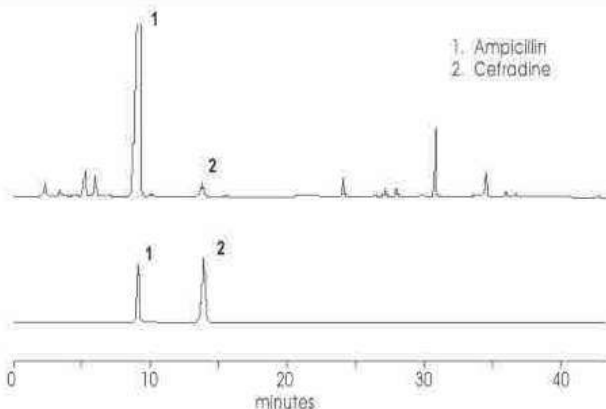
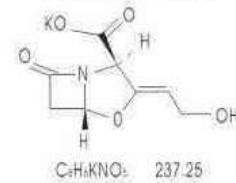
Detection: UV @ 254nm
 Temperature: Ambient



Amoxicillin



Clavulanate Potassium



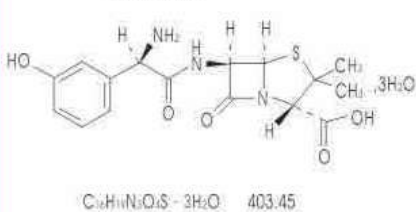
The related substance of ampicillin sodium for injection

Packing: HyperCHROM ODS-BP 5 μ m
 Column: 4.6 x 200mm
 Eluent: A: 12% acetic acid:0.2mol/L phosphate buffer:ACN:H₂O=0.5:50:50:900
 B: 12% acetic acid:0.2mol/L phosphate buffer:ACN:H₂O=0.5:50:400:550
 Flow rate: 1.0mL/min
 Gradient:

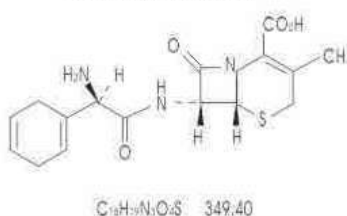
Time(min)	Mobile Phase A(%)	Mobile Phase B(%)
0	85	15
10	85	15
40	0	100
50	0	100
51	85	15

Detection: UV @ 254nm
 Temperature: Ambient

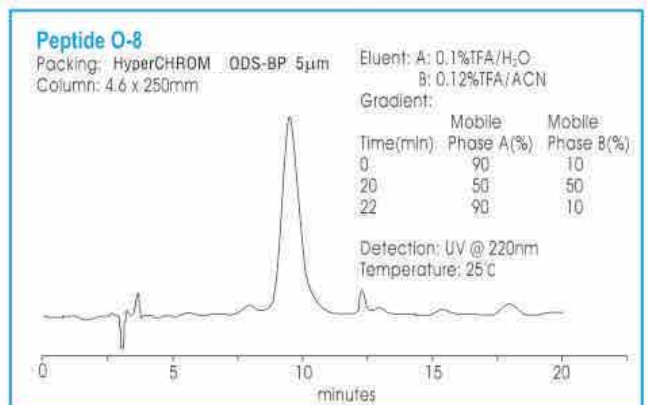
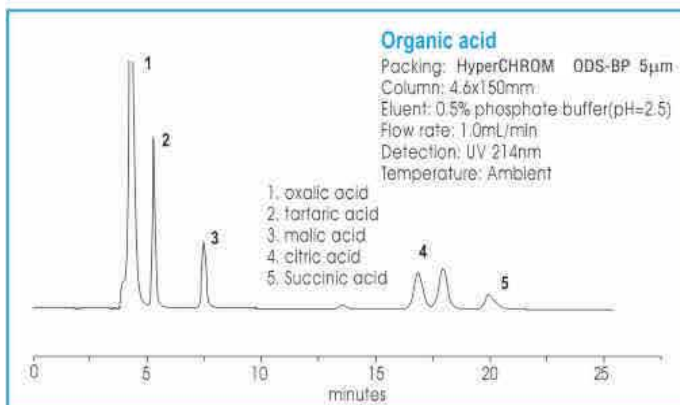
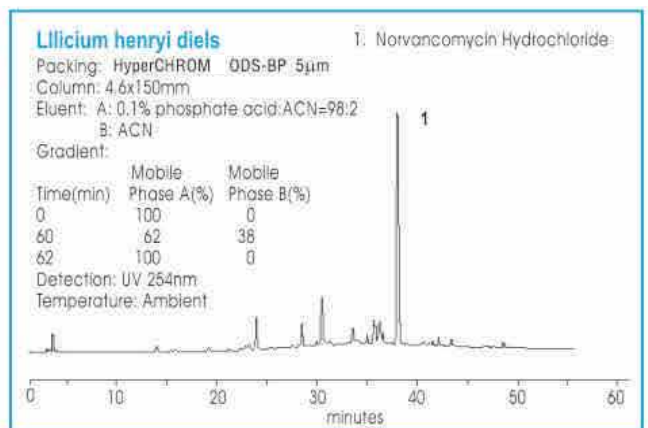
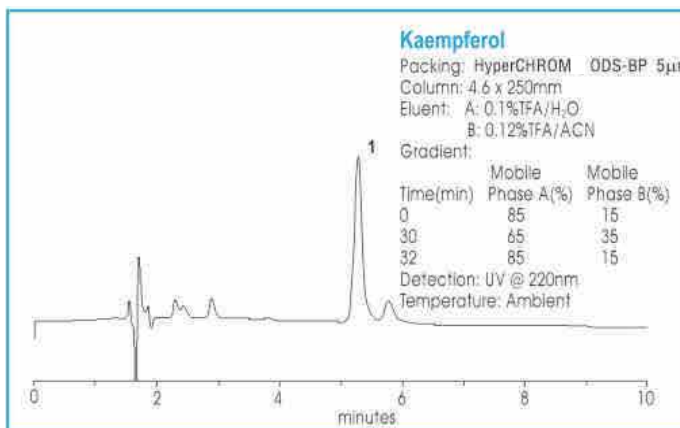
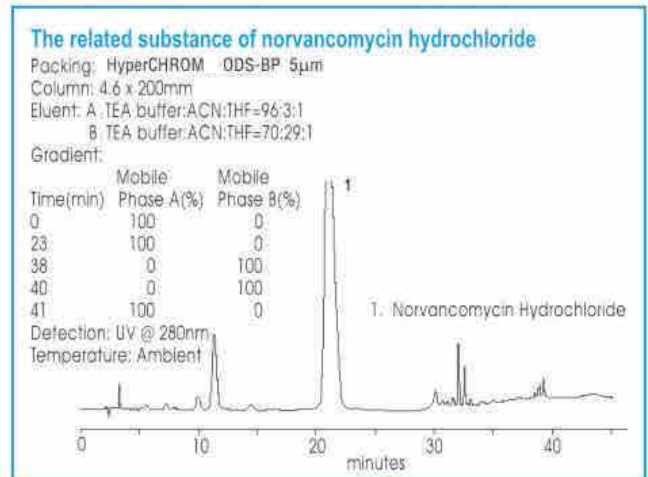
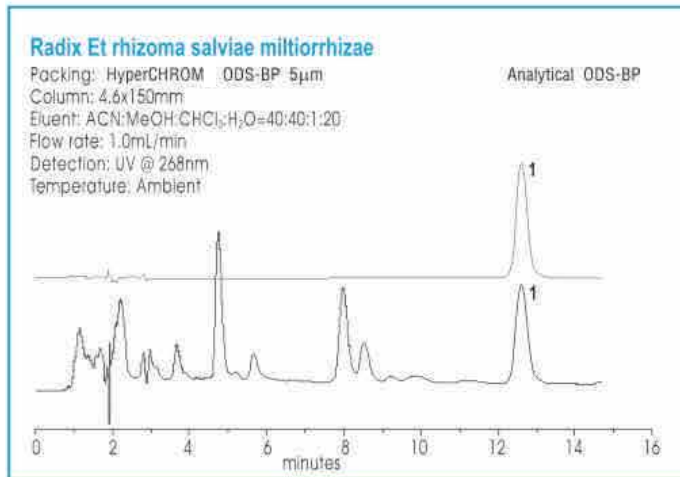
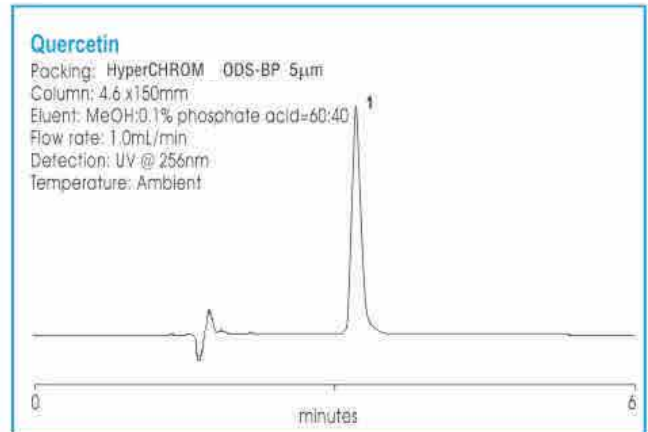
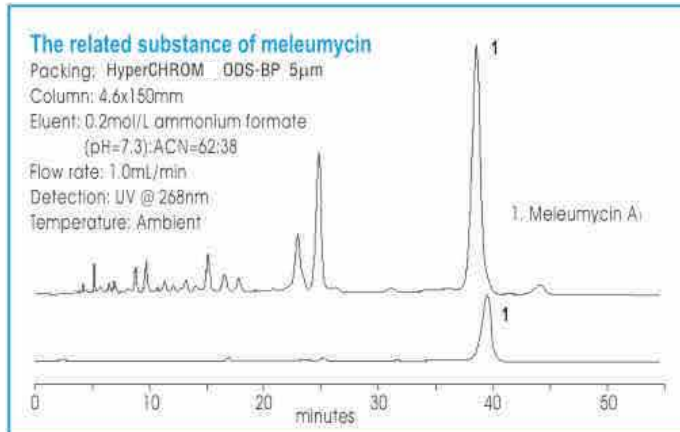
Amoxicillin



Clavulanate Potassium



►► Application



►► **Hyprev CHROM HPLC Column**

Dimension: ID 4.6 mm, Length 150-300mm

Connection: 1/16" (Standard)

Packing Material: World famous brand material, such as Kromasil, Luna, YMC, Daiso etc.



►► **HyperCHROM Semi-Preparative HPLC Column**

Dimension: ID 10-40mm, Length 150-300mm

Connection: 1/16" (Standard)

Packing Material: World famous brand material, such as Kromasil, Luna, YMC, Daiso etc.

►► **HyperCHROM Preparative HPLC Column**

Dimension: ID 50-500mm, Length 150-600mm

Connection: 1/8" or 1/4" (Standard)

Packing Material: World famous brand material, such as Kromasil, Luna, YMC, Daiso etc.

we can produce all kinds of hplc columns basis of customers requirement.

Preparative hplc column re-packing service

Preparative hplc cloumn application support.

We promise that each column must be tested strictly and attached with test report.



DAC50 PREPARATIVE
HPLC COLUMN



DAC150 PREPARATIVE
HPLC COLUMN



DAC800 PREPARATIVE
HPLC COLUMN

DAC stands for dynamic axial compression. It combines the preparative column and packing system together. It is very sample to operate. The colimn can used online when it is packed well. Don't need to take the column down. It prevents mechanical degradation of the particles. Bed compression is maintained constant, independent of swelling or shrinking of the bed. If the solvent conditions are such that particle swelling takes place that the piston automatically let the bed expand to maintain constant compression.

HyperCHROM-PACK DAC columns can be consistently packed with small particulate media (10um and less) to high levels of performance: column efficiencies of up to 50,000 theoretical plates per meter have been reported for columns of 50 and 300 mm internal diameter (i.d.) This requires an even distribution of the liquid flow over the column cross-section. Our engineers have modeled the flow pattern at the column ends and designed efficient flow distribution systems for optimum performance. For even better control of chromatographic conditions. DAC columns are delivered with a temperature jacket and/or insulation.

►► **Specification:**

Column:	Internal diameter: ID30mm-ID1000mm
	Tube length:650mm
	Tube internal surface finish: Ra <0.8um
	Material: SST316 sintered
Filter:	Material: SST316 sintered
	pore size: 3.5um
Piston:	Material:SST316L
Hydraulic cylinder:	Maximum working pressure: 50MPa
	Viscosity range: 46-68cst.
Pressure Indicator:	Air pressure meter: 0-10bar, 0.01 degree
	Hydraulic meter: 0-400bar, 0.1 degree
Working pressure:	120bar max. Piston act on the column bed
Air supply requirement:	Rated air out pressure 0.5-1 MPa



HPLC Servicing, Validation, Trainings and Preventive Maintenance :

HPLC Servicing :HPLC Servicing : We have team of service engineers who can attend to any make of HPLC promptly @the most affordable cost.

Trainings :We also take up preventive Maintenance to reduce downtime of HPLC's Trainings.

AMC's/CMC :AMC's/CMC :We offer user training both in-House and at customer sites on HPLC principles, operations, trouble-shooting.

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Chromatograph
3007



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Chromatograph
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Chromatograph



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Spectrophotometer



Liquid Particle
Counter



Optical Emission
Spectrophotometer



DSC/TGA



Semi Auto Bio
Chemistry Analyzer



HEMA 2062
Hematology
Analyzer



Micro Plate
Reader/Washer



URINOVA 2800
Urine Analyzer



Total Organic
Carbon 3800



Fully Automated
CLIA



NOVA-2100
Chemistry Analyzer



PCR/Gradient PCR/
RTPCR



TOC
Analyzer



Laser Particle
Size Analyzer



Ion Chromatograph



Water purification
system

Regulatory compliances



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Corporate & Regd. Office:
Analytical House, # E67 & E68,
Ravi Park, Vasna Road, Baroda,
Gujarat 390 015. INDIA

T: +91 265 2253620
+91 265 2252839
+91 265 2252370
F: +91 265 2254395

E: info@hplctechnologies.com
info@multiplelabs.com
info@analyticalgroup.net
info@analyticalbiomed.com

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