

## Accessories for LiChroCART® stainless steel cartridges.

Stainless steel cartridge LiChroCART® manu-CART™/Ordering information

Designation	VWR Cat. No.	Contents of one package
manu-CART™ UC endfittings for i.d.2 mm, i.d. 3mm, i.d. 4mm, i.d. 4.6mm LiChroCART® HPLC cartridges.	<a href="#">14229-736</a>	2 complete stainless steel unit for capillary connections i.d. 2mm, i.d. 3mm, i.d. 4mm, i.d. 4.6mm (o.d. 1/16" or 0.5mm)

## Accessories for Hibar® pre-packed columns.

Stainless steel pre-column holder/Ordering information

Designation	VWR Cat. No.	Contents of one package
Cartridge holder UC for a 4-4mm pre-column for direct coupling to Hibar® columns with an i.d. of 2 mm, 3 mm, 4mm, 4.6mm.	<a href="#">48219-886</a>	1 holder stainless steel

## HPLC columns for LC-MS analysis and high-speed separations.

Stainless steel cartridges LiChroCART® Purospher®STAR/Ordering information

Packing material	VWR Cat. No.	Particle size	Dimension length	Dimension i.d.	Contents of one package	USP classification
Purospher®STAR RP-8 endcapped	<a href="#">48219-894</a>	3 µm	30 mm	2 mm	1 set	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-896</a>	3 µm	30 mm	2 mm	3 pieces	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-898</a>	3 µm	55 mm	2 mm	1 set	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-900</a>	3 µm	55 mm	2 mm	3 pieces	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-902</a>	3 µm	30 mm	4 mm	1 set	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-904</a>	3 µm	30 mm	4 mm	3 pieces	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-906</a>	3 µm	55 mm	4 mm	1 set	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-908</a>	3 µm	55 mm	4 mm	3 pieces	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-910</a>	3 µm	75 mm	4 mm	1 piece	L7
Purospher®STAR RP-18 endcapped	<a href="#">48219-762</a>	3 µm	30 mm	2 mm	1 set	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-764</a>	3 µm	30 mm	2 mm	3 pieces	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-768</a>	3 µm	55 mm	2 mm	1 set	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-770</a>	3 µm	55 mm	2 mm	3 pieces	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-766</a>	3 µm	30 mm	4 mm	1 set	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-754</a>	3 µm	30 mm	4 mm	3 pieces	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-772</a>	3 µm	55 mm	4 mm	1 set	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-760</a>	3 µm	55 mm	4 mm	3 pieces	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-870</a>	3 µm	75 mm	4 mm	1 piece	L1





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Darmstadt, Germany

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0104 (10M) Lit. No. 99941

VWR International, Inc.  
An Affiliate of Merck KGaA  
Darmstadt, Germany

# Purospher<sup>®</sup> STAR

COLUMNS


Easy to Choose,  
Easy to Use.

**VWR**  <sup>TM</sup>  
**INTERNATIONAL**

Merck KGaA  
Darmstadt, Germany



## Finding the right new HPLC column can be a real problem!



There are so many factors to be considered and so many different types of columns available.

Are your samples polar, non-polar, basic or metal chelating? How much will they change in the future? Will the column be stable enough in the eluents you need to use? What happens to the column if the pH of the eluent has to be changed? Is the column capacity sufficient for your samples? And so on and so on!

For those choosing the columns it can be a real challenge and one which is frequently very time consuming and complicated.

It is also hardly surprising that many laboratories have a whole range of columns and must switch columns every time they wish to do a different analysis. For some years an expert team of researchers at Merck KGaA, Darmstadt, Germany has been working to create an effective solution to this dilemma.

The Goal: – The Universal HPLC Column.

The Purospher®STAR family of HPLC columns are the product of this research. The HPLC columns make it easy to choose the right solution for your next HPLC separation.

# Purospher®STAR HPLC Columns: The easy choice.

Purospher®STAR

columns are a family of  
HPLC columns completely  
redesigned using modern state-  
of-the-art materials and methods.

They combine classic characteristics  
such as reproducibility and pressure  
stability with the dramatic advancement  
in chromatographic efficiency, performance  
and pH stability. This has been realized  
through optimization of every parameter of  
the manufacturing process.

It doesn't matter with Purospher®STAR Columns  
if your samples are basic, neutral, metal chelating  
or indeed any other format. You can be sure that  
Purospher®STAR can do it, without peak tailing!

Of course you need a column that is robust, stable  
in a range of eluent conditions and has an extended  
column life. Based on a new metal free alkoxysilane  
production process, Purospher®STAR columns are out-  
standingly robust and have excellent pH stability in all  
but the most extreme of conditions. All Purospher®STAR  
columns, regardless of batch, provide excellent repro-  
ducibility of the analytical result.

With a capacity and selectivity unsurpassed by any other  
HPLC column available, you can be sure of achieving super-  
ior peak shape and maximum resolution.

In the Purospher®STAR family of HPLC columns it is easy to  
find the right column for your needs. The result is quality,  
speed in high-throughput analysis and the opportunity to  
directly scale-up from analytical to semi-preparative HPLC. So  
for most separations Purospher®STAR columns are the perfect  
HPLC column.

A simple choice which removes the need to agonize over the diffe-  
rent properties of the many different columns available.

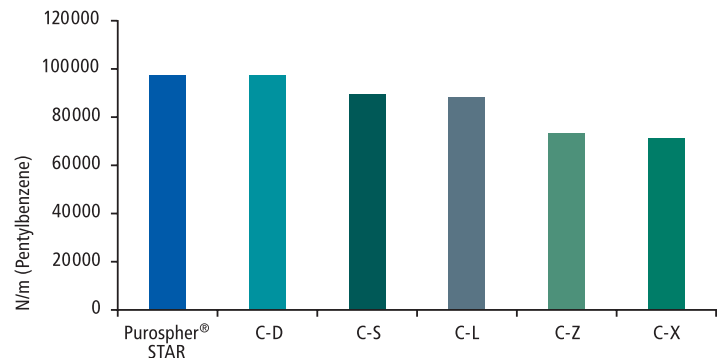
**Purospher®STAR HPLC Columns:  
Easy to Choose, Easy to Use.**



# Outstanding separation power!

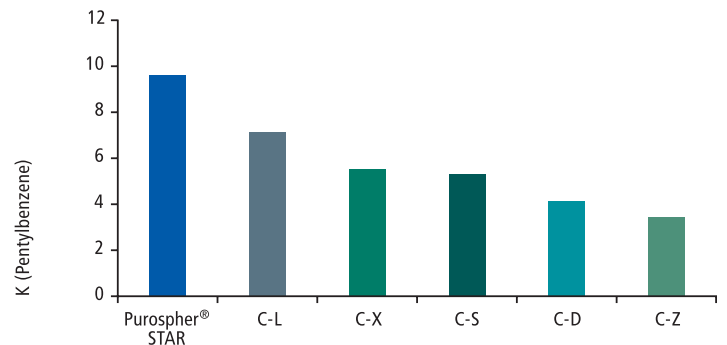
## Unsurpassed plate number.

Purospher®STAR HPLC columns provide the power to separate even the most difficult of compound mixtures. With up to 150,000 plates per meter for the 3µm and 100,000 plates per meter for the 5µm particle size, Purospher®STAR columns will ensure that you achieve good base line separations.



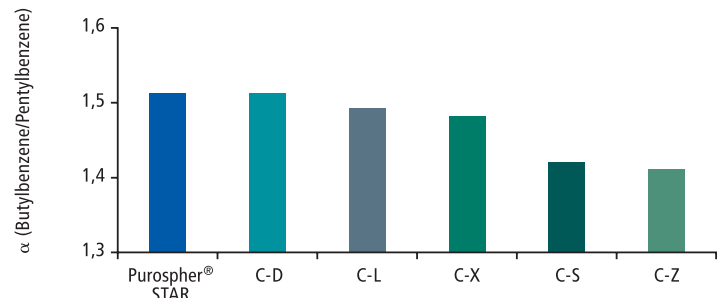
## The highest capacity.

Of course, sample volumes differ from one application to another. That is why Purospher®STAR columns have been designed to provide optimum results even when loaded with large sample volumes. Purospher®STAR columns will take greater sample sizes per injection than most other HPLC columns available. Purospher®STAR columns also provide excellent results with small sample sizes and are even available in a narrow bore format (1mm) to maximize peak size when injecting precious micro-litre samples.



## Outstanding hydrophobicity.

When separating chemically almost identical non-polar compounds it is very important to have a stationary phase available with a superior hydrophobicity. Demonstrated by measuring the excellent separation factor for the substance pair pentylbenzene and butylbenzene, Purospher®STAR columns clearly are the optimum tool for the separation of difficult hydrophobic samples.

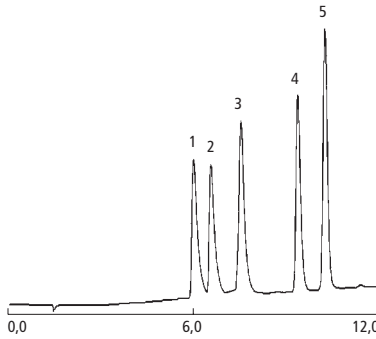


# The versatility you need!

Purospher®STAR HPLC columns provide the separation medium you need to analyze an extensive range of samples.

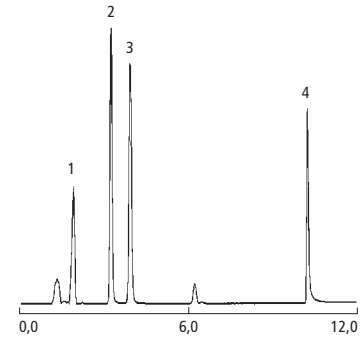
It doesn't matter what your samples are today or will become tomorrow, Purospher®STAR is the right column in nearly all cases.

## Basic Compounds Application – Triptlyline



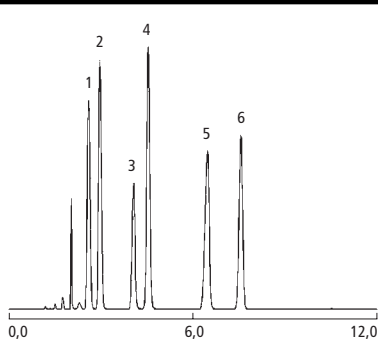
Column: LiChroCART® 150-4,6  
Purospher®STAR RP-18e, 5 µm  
Mobile phase: A: Methanol  
B: 0.02 M Phosphate buffer pH 7.5  
0min 80% A, 15min 100% A  
Flow rate: 1.0 ml/min  
Detection: UV 220 nm  
Temperature: 30°C  
Inj. Volume: 10 µl  
Sample: 1. Protriptyline  
2. Nortriptyline  
3. Doxepin  
4. Imipramine  
5. Amitriptyline

## Metal Chelating Compounds Application – Flavonoids



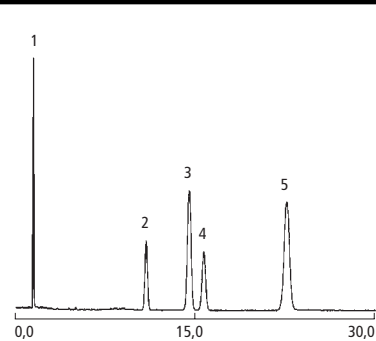
Column: LiChroCART® 150-4,6  
Purospher®STAR RP-18e, 5 µm  
Mobile phase: A: Acetonitrile  
B: 0.1% Phosphoric acid  
0min 40% A, 3min 40% A, 8min 05% A  
Flow rate: 1.0 ml/min  
Detection: UV 365 nm  
Temperature: 30°C  
Inj. Volume: 10 µl  
Sample: 1. Rutin  
2. Morin  
3. Quercetin  
4. 3-Hydroxyflavon

## Polar and Acidic Compounds Application – Contents of Energy Drinks



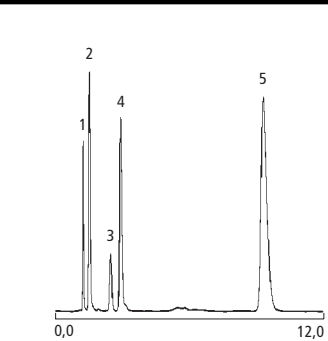
Column: LiChroCART® 150-4,6  
Purospher®STAR RP-18e, 5 µm  
Mobile phase: A: Acetonitrile  
B: 0.02 M Phosphate buffer pH 5.0  
0min 15% A, 3min 15% A, 10min 30% A  
Flow rate: 1.0 ml/min  
Detection: UV 227 nm  
Temperature: 30°C  
Inj. Volume: 10 µl  
Sample: 1. Acesulfame - K 23 µg/ml  
2. Saccharin 29 µg/ml  
3. Benzoic acid 13 µg/ml  
4. Sorbic acid 14 µg/ml  
5. Caffeine 47 µg/ml  
6. Aspartame 100 µg/ml

## Non-Polar Compounds Tanaka Mix 1



Column: LiChroCART® 150-4,6  
Purospher®STAR RP-18e, 5 µm  
Mobile phase: Methanol/Water 80:20  
Flow rate: 1.0 ml/min  
Detection: UV 254 nm  
Temperature: 30°C  
Inj. Volume: 10 µl  
Sample: 1. Uracil  
2. Butylbenzene  
3. o-Terphenyl  
4. Pentylbenzene  
5. Triphenylene

## Separations under aqueous conditions



Column: LiChroCART® 150-4,6  
Purospher®STAR RP-18e, 5 µm  
Mobile phase: 20 mM Kaliumphosphat, pH 3.0/  
Methanol (97:3)  
Flow rate: 1.5 ml/min  
Detection: 270 nm  
Temperature: 30°C  
Inj. Volume: 10 µl  
Sample: 1. Norepinephrin 195 µg/ml  
2. Epinephrin 202 µg/ml  
3. Dopamin 214 µg/ml  
4. L-Dopa 205 µg/ml  
5. Serotonin 99 µg/ml

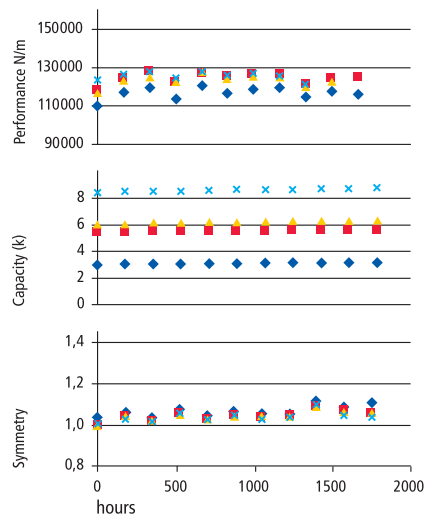
# The strength to last and last!

## pH stability.

Purospher®STAR columns have outstanding pH stability. Various studies have shown that Purospher®STAR columns remain stable and reproducible in a pH range of 1.5 to 10.5.

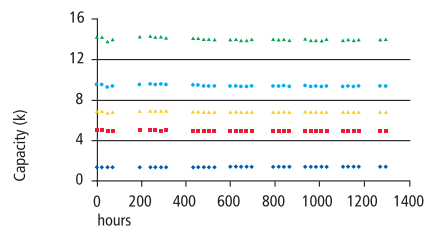
This provides the required pH stability for 99% of common analysis and ensures a simple choice in most applications.

## Stability test at pH 1.5



Column: LiChroCART® 150-4.6, Purospher®STAR RP-18e, 5 µm  
 Eluent: Acetonitrile/Water (0.01% TFA; 50:50)  
 Flow rate: 1.0 ml/min  
 Detection: UV 254 nm  
 Temperature: RT  
 Inj. volume: 10 µl  
 Sample: Ketoprofen (blue diamond), Fenoprofen (red square), Flurbiprofen (yellow triangle), Ibuprofen (cyan cross)

## Stability test at pH 10.5



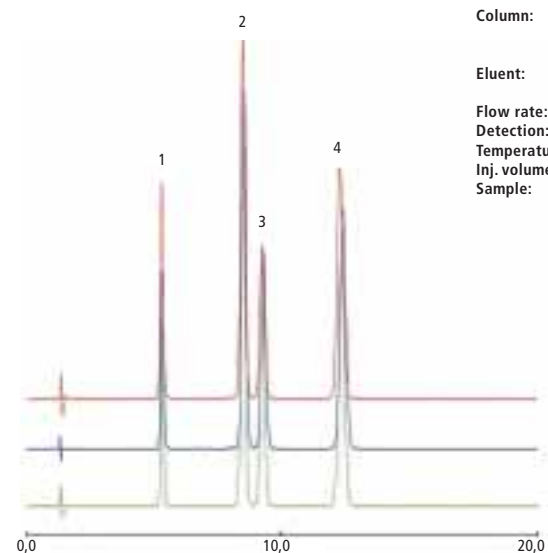
Column: LiChroCART® 150-4.6, Purospher®STAR RP-18e, 5 µm  
 Eluent: Acetonitrile/Water (0.1% NH3 [25%]; 60:40)  
 Flow rate: 1.0 ml/min  
 Detection: UV 254 nm  
 Temperature: RT  
 Inj. volume: 10 µl  
 Sample: 1. Thiourea (blue diamond), 2. Benzene (red square), 3. Toluene (yellow triangle), 4. Propylbenzene (cyan cross), 5. Butylbenzene (green asterisk)

## Stable retention time.

To ensure the long term chemical stability of Purospher®STAR HPLC columns, special derivatization and end-capping processes have been developed to guarantee a constant retention time even after 3000 injections. This ensures that all users really get value for money.

Naturally, retention time alone is not enough! But even after 3000 injections Purospher®STAR columns show the same selectivity and resolution as they had when new.

## Long term stability test

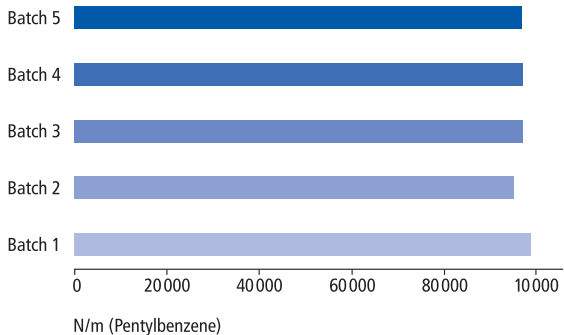


Column: LiChroCART® 150-4.6, Purospher®STAR RP-18e, 5 µm  
 Eluent: Acetonitrile/Water (0.01% TFA; 50:50)  
 Flow rate: 1.0 ml/min  
 Detection: UV 254 nm  
 Temperature: RT  
 Inj. volume: 10 µl  
 Sample: 1. Ketoprofen, 2. Fenoprofen, 3. Flurbiprofen, 4. Ibuprofen

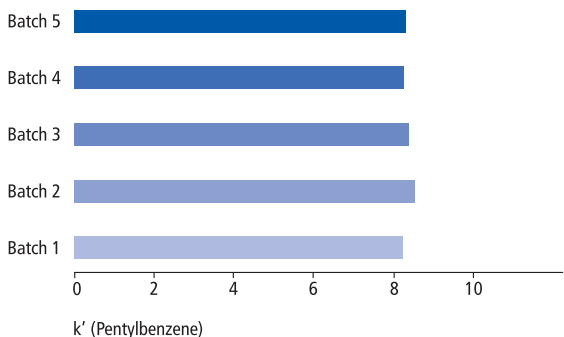
3300 injections after 1600 hours  
 1650 injections after 800 hours  
 1. injection

# Reproducibility you can depend on!

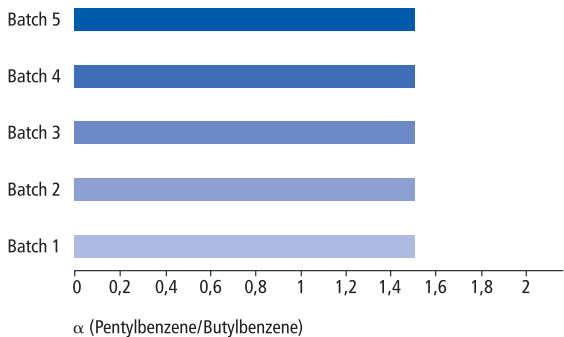
## Reproducibility test for performance



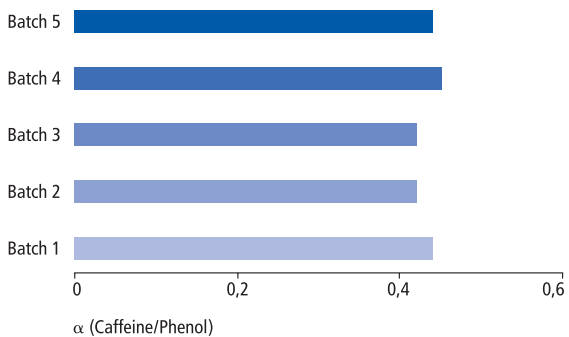
## Reproducibility test for capacity



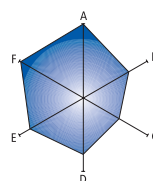
## Reproducibility test for separation efficiency



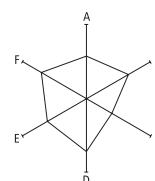
## Reproducibility test for silanol deactivation



Purospher®STAR RP-18e



C-P



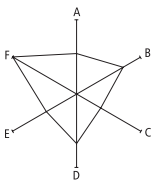
The ideal HPLC column has to provide excellent separations but this is of no value at all if the column cannot perform consistently every time to the same high standards. Merck KGaA, Darmstadt, Germany has decades of experience in the manufacturing of high quality HPLC columns has developed a world-wide reputation and proven expertise for consistent quality.

# The Purospher®STAR family of HPLC columns: in summary.

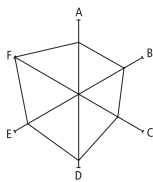
The "Tanaka" test is now established world-wide as the best method of comparing the quality and performance of HPLC columns. This test summarizes and visualizes all the most important parameters required to choose the right HPLC column and allows easy comparisons to be made. Fundamentally the more symmetrical the hexagon the better. The Purospher®STAR HPLC column advantage is clear!

## Purospher®STAR HPLC Columns: Easy to Choose, Easy to Use.

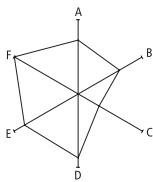
C-Z



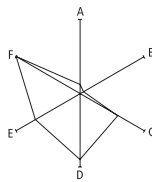
C-S



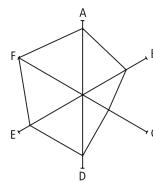
C-L



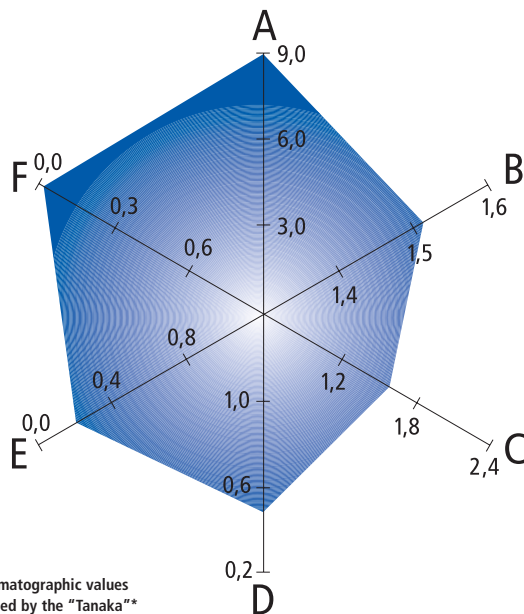
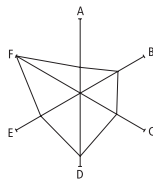
C-N



C-I



C-D



The chromatographic values determined by the "Tanaka" test are shown on the six interconnected axis A to F of the hexagon.

The test parameters are as follows:

- |                                    |                                |
|------------------------------------|--------------------------------|
| A. Capacity                        | k' (Pentylbenzene)             |
| B. Hydrophobicity                  | α (Pentylbenzene/Butylbenzene) |
| C. Steric selectivity              | α (Triphenylene/o-Terphenyl)   |
| D. Silanol group capacity          | α (Caffeine/Phenol)            |
| E. Ion exchange capacity at pH 7.6 | α (Benzylamine/Phenol)         |
| F. Ion exchange capacity at pH 2.7 | α (Benzylamine/Phenol)         |

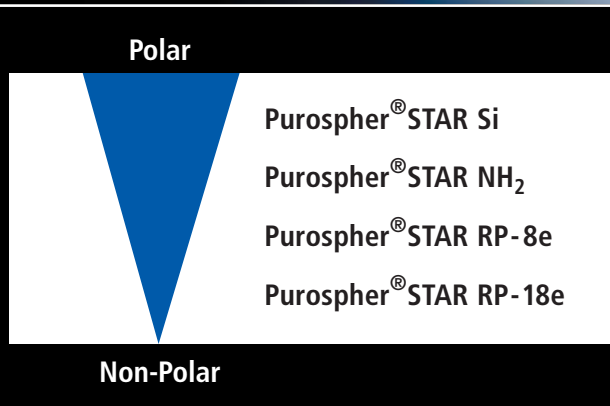
\*Chromatographic Characterization of Silica C 18 Packing Materials.  
K. Kimata, K. Iwaguchi, S. Onishi, K. Jinno, R. Eksteen, K. Hosoya, M. Araki, N. Tanaka, J. Chromatogr. Sci., 27, 721-728 (1989) Chromatographic Characterization of Silica C18 Packing Materials. K. Kimata, K. Iwaguchi, S. Onishi, K. Jinno, R. Eksteen, K. Hosoya, M. Araki, N. Tanaka, J. Chromatogr. Sci., 27, 721-728 (1989)

# Choosing the right Purospher® STAR HPLC Columns!

In fact, choosing the right Purospher® STAR HPLC column could not be easier. It's just a simple two step process:

## Step One:

Use the following simple chart to decide on the column derivatization you need.



## Step Two:

Select the column dimensions you need by referring to this diagram.

### LC-MS, simple mixtures

i.d.: 2, 4 mm  
length: 30, 55, 75 mm

### Trace analysis

i.d.: 1, 2, 3 mm  
length: 125, 150, 250 mm

### Complex mixtures

i.d.: 4, 4.6 mm  
length: 125, 150, 250 mm  
+guard column 4x4 mm

### Semiprep / Up-scaling

i.d.: 10, 21.2, 25 mm  
length: 30, 50, 100 mm

Now all you have to do is to look up the right product number in the following list and place your order.

## HPLC columns for classical analytical separations of complex mixtures.

Stainless steel cartridges LiChroCART® Purospher®STAR column / Ordering information

Packing material	VWR Cat. No.	Particle size	Dimension length	Dimension i.d.	Contents of one package	USP classification
Purospher®STAR Si	<a href="#">48219-782</a>	5 µm	4 mm	4 mm	10 pieces	L3
Purospher®STAR Si	<a href="#">48219-784</a>	5 µm	125 mm	4 mm	1 piece	L3
Purospher®STAR Si	<a href="#">48219-868</a>	5 µm	250 mm	4 mm	1 piece	L3
Purospher®STAR Si	<a href="#">48219-786</a>	5 µm	150 mm	4.6 mm	1 piece	L3
Purospher®STAR Si	<a href="#">48219-788</a>	5 µm	250 mm	4.6 mm	1 piece	L3
Purospher®STAR NH2	<a href="#">48219-484</a>	5 µm	4 mm	4 mm	10 pieces	L8
Purospher®STAR NH2	<a href="#">48219-470</a>	5 µm	125 mm	4 mm	1 piece	L8
Purospher®STAR NH2	<a href="#">48219-472</a>	5 µm	250 mm	4 mm	1 piece	L8
Purospher®STAR NH2	<a href="#">48219-474</a>	5 µm	150 mm	4.6 mm	1 piece	L8
Purospher®STAR NH2	<a href="#">48219-476</a>	5 µm	250 mm	4.6 mm	1 piece	L8
Purospher®STAR RP-8 endcapped	<a href="#">48219-790</a>	5 µm	4 mm	4 mm	10 pieces	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-792</a>	5 µm	125 mm	4 mm	1 piece	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-794</a>	5 µm	250 mm	4 mm	1 piece	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-796</a>	5 µm	150 mm	4.6 mm	1 piece	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-798</a>	5 µm	250 mm	4.6 mm	1 piece	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-882</a>	5 µm	250 mm	10 mm	1 piece	L7
Purospher®STAR RP-18 endcapped	<a href="#">48219-478</a>	5 µm	4 mm	4 mm	10 pieces	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-480</a>	5 µm	125 mm	4 mm	1 piece	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-482</a>	5 µm	250 mm	4 mm	1 piece	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-486</a>	5 µm	150 mm	4.6 mm	1 piece	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-488</a>	5 µm	250 mm	4.6 mm	1 piece	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-884</a>	5 µm	250 mm	10 mm	1 piece	L1

Stainless steel pre-packed columns Hibar® RT Purospher®STAR column / Ordering information

Packing material	VWR Cat. No.	Particle size	Dimension length	Dimension i.d.	Contents of one package	USP classification
Purospher®STAR RP-8 endcapped	<a href="#">48219-800</a>	5 µm	125 mm	4 mm	1 piece	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-802</a>	5 µm	250 mm	4 mm	1 piece	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-804</a>	5 µm	150 mm	4.6 mm	1 piece	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-806</a>	5 µm	250 mm	4.6 mm	1 piece	L7
Purospher®STAR RP-18 endcapped	<a href="#">48219-808</a>	5 µm	125 mm	4 mm	1 piece	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-810</a>	5 µm	250 mm	4 mm	1 piece	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-812</a>	5 µm	150 mm	4.6 mm	1 piece	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-814</a>	5 µm	250 mm	4.6 mm	1 piece	L1

## HPLC columns for trace analysis and micro LC

Stainless steel narrow bore cartridges LiChroCART® Purospher®STAR column / Ordering information

Packing material	VWR Cat. No.	Particle size	Dimension Length	Dimension i.d.	Contents of one package	USP Classification
Purospher®STAR RP-18 endcapped	<a href="#">48219-888</a>	5 µm	150 mm	1 mm	1 piece	L1
Purospher®STAR RP-8 endcapped	<a href="#">48219-816</a>	5 µm	125 mm	2 mm	1 piece	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-818</a>	5 µm	250 mm	2 mm	1 piece	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-820</a>	5 µm	125 mm	3 mm	1 piece	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-822</a>	5 µm	250 mm	3 mm	1 piece	L7
Purospher®STAR RP-18 endcapped	<a href="#">48219-824</a>	5 µm	125 mm	2 mm	1 piece	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-826</a>	5 µm	250 mm	2 mm	1 piece	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-828</a>	5 µm	125 mm	3 mm	1 piece	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-830</a>	5 µm	250 mm	3 mm	1 piece	L1

## HPLC columns for high-speed semi-preparative purification and separation.

Stainless steel pre-packed columns Purospher®STAR column / Ordering information

Packing material	VWR Cat. No.	Particle size	Dimension length	Dimension i.d.	Contents of one package	USP classification
Purospher®STAR RP-8 endcapped	<a href="#">48219-832</a>	5 µm	30 mm	10 mm	1 piece	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-836</a>	5 µm	50 mm	10 mm	1 piece	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-840</a>	5 µm	100 mm	10 mm	1 piece	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-844</a>	5 µm	30 mm	21.2 mm	1 piece	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-848</a>	5 µm	50 mm	21.2 mm	1 piece	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-852</a>	5 µm	100 mm	21.2 mm	1 piece	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-856</a>	5 µm	30 mm	25 mm	1 piece	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-860</a>	5 µm	50 mm	25 mm	1 piece	L7
Purospher®STAR RP-8 endcapped	<a href="#">48219-864</a>	5 µm	100 mm	25 mm	1 piece	L7
Purospher®STAR RP-18 endcapped	<a href="#">48219-834</a>	5 µm	30 mm	10 mm	1 piece	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-838</a>	5 µm	50 mm	10 mm	1 piece	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-842</a>	5 µm	100 mm	10 mm	1 piece	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-846</a>	5 µm	30 mm	21.2 mm	1 piece	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-850</a>	5 µm	50 mm	21.2 mm	1 piece	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-854</a>	5 µm	100 mm	21.2 mm	1 piece	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-858</a>	5 µm	30 mm	25 mm	1 piece	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-862</a>	5 µm	50 mm	25 mm	1 piece	L1
Purospher®STAR RP-18 endcapped	<a href="#">48219-866</a>	5 µm	100 mm	25 mm	1 piece	L1