Dr. Maisch GmbH

Any Column, Any Size, Any Media

Reprospher
Silica Based

Reprospher™
HPLC Columns

- High stability and robustness
- Excellent resolution and recoveries
- Wide range of pore sizes
- Capillary column format to process scale

Dr. Maisch HPLC Reprospher™ - Silica Based

Reprospher Silica Based HPLC Columns

- Ultra high purity
- Base deactivated silica
- Fully scalable from 1.7µm to 15µm
- Capillary to Preparative Formats
- Unique selectivities (C18-Phenyl, C18-WCX, C18-TNE)
- SFC approved (NH2, Si, PFP, C18-WCX and **PEI**)

Specification:

Pore Size:	100A ,	200A ,	300A
Surface Area:	300m²	200m²	100m²

The Reprospher range of silica comes with a wide selection of particles sizes (1.7µm to 15µm), pore sizes and column dimensions. With some unique proprietary bonding chemistries, they provide a selection of orthogonal phases for your method development. Excellent column performance and reproducible chromatography with basic, acidic and neutral compounds ensure that there are no surprises during method validation.

Your Workhorse

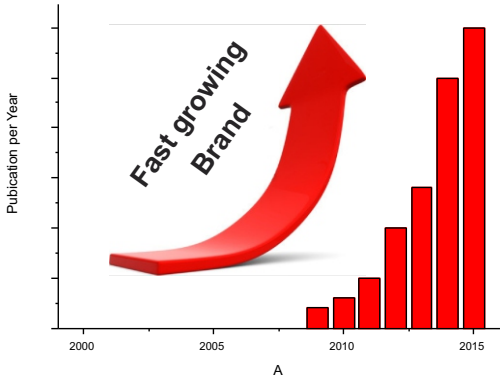
Reprosphere Specifications — **Base Material:** Spherical Silica

Phase:	Modification:	Endcapping	Pore Size	Carbon Load	USP
RP					
C30-DE	Sterical recognition	double	100 , 200	20% , 10%	
C18	Standard C18	yes	100 , 200 , 300	16% , 9% , 7%	
C18-DE	Low Silanol activity	double	100 , 200 , 300	16% , 10% , 7%	
C18-Aqua	100% Water suitable	polar	100 , 300	12% , 4%	
C18-NE	Polar + C18	none	100 ,	15% ,	
C18-TDE	Trifunctional + hydrophobic	double	100 , 200	20% , 12% , 11%	
C18-TN	Trifunctional + polar	none	100 , 200 , 300	17% , 11% ,10%	
C18-Phenyl	Bimodal Separation mechanism	yes	100	N/A	
C18-WCX	C18 + carboxylic Side chain	none	100	N/A	
C12	Lower Retention to C18	yes	100	8%	
C8	Standard C8	yes	100 , 200 , 300	10% , 5% , 4%	
C8-DE	Low Silanol activity	double	100	10%	
C8-NE	Polar + C8	none	100 , 300	10% ,	
C8-Aqua	100% Water suitable	polar	100	8%	
Phenyl	Phenyl-Butyl Spacer	yes	100 , 200 , 300	9% , 5% , 4%	
Phenyl-Hexyl	Phenyl-Hexyl Spacer	None & yes	100	13%	
Diphenyl	Phenyl-Si-Phenyl Modification	yes	100	N/A	
Biphenyl	Si-Phenyl-Phenyl Modification	yes	100	N/A	
Pentafluorphenyl	Pentafluorophenyl Modification	yes	100	N/A	
C6-TDE	Trifunctional Hexyl + hydrophobic	double	100	8%	
C4	Standard C4	yes	100 , 300	6% , 2,5%	
C4-DE	Low Silanol activity	double	100 , 300	7% , 3%	
C4-Aqua	100% Water suitable	polar	100 , 300	6% , 3%	
NP / HILIC & SFC suitable					
Si		none	100 , 200 , 300	N/A	
CN		none	100	7%	
Diol		none	100	7%	
2-EP	2-Ethylpyridin	none	100	N/A	
4-EP	4-Ethylpyridin	none	100	N/A	
NH2		none	100	4%	
NH2-DE	NH_2 + hydrophobic Character	double	100	4%	
PEI	Polyethylenimin	none	100 , 300	N/A	
HILIC-ARG	HILIC with Argine groups	none	100	N/A	

Reprospher History

The Reprospher range of silica was launched in 2003. The capacity has been successively enlarged over the last decades from a gram to a hundred kg scale. Reprospher raised to one of the Top Brands on the market.

! The **workhorse** which should not be missed in any laboratory !



hplc

Batch to Batch reproducibility

The whole manufacturing process of Reprospher Silica is based on ultra pure reagents. This leads to a very uniform particles shape and highly reproducible pore stuctures and surface characteristics.

The advanced bonding technology results in highly base deactivated phases that combine perfect pH stability and extraordinary batch to batch consistency.

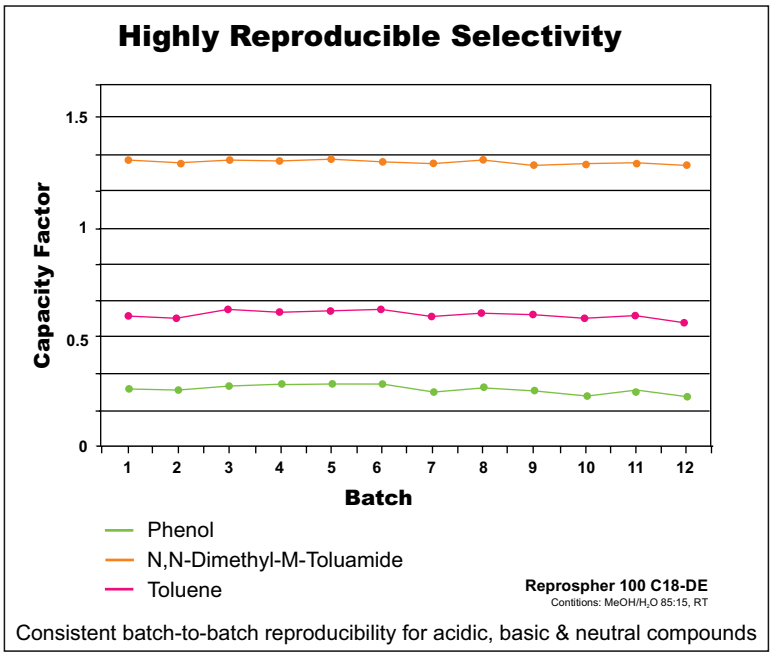
Every new batch is extensively tested and it has to pass the very high Dr.Maisch HPLC standards.
Very narrow specifications guarantee a straigt forward validation process on the customer side.
Every column has to pass all Parameters:

- Selectivity
- Surface activity for acidic, basic and neutral compounds
- Performance

The figure on the right demonstrate the very tight specs.

Dr.Maisch quality:

Theoretical plates: > 75 000 plates (5µm)
Asym: 0.9-1.3

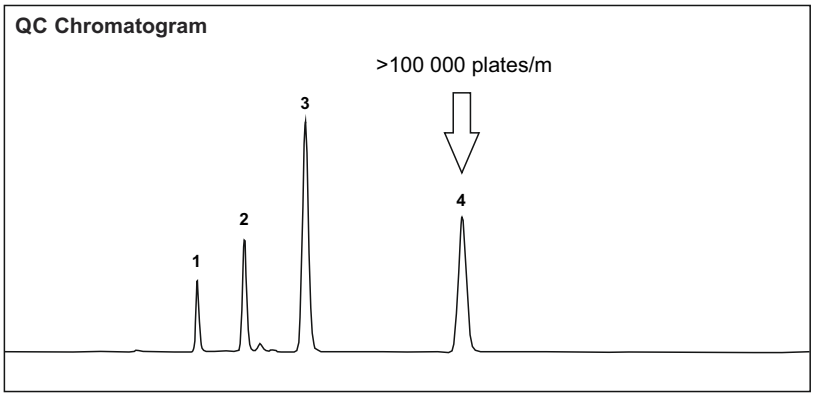


Consistent batch-to-batch reproducibility for acidic, basic & neutral compounds

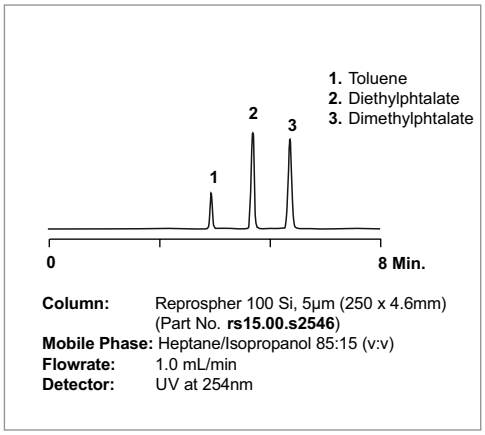
Quality made in Germany

Compound	Asym	Plates/m
1. Uracil	1.1	94 000
2. Phenol	1.1	98 000
3. N,N-Diethyl-M-Toluamid	1.0	91 000
4. Toluene	1.0	105 000

Column: Reprospher 100 C18-TDE, 5µm (150 x 4.6mm)
(Part No. **rs15.9tde.s1546**)
Mobile Phase: Heptane/Isopropanol 85:15 (v:v)
Flowrate: 1.0 mL/min
Detector: UV at 254nm



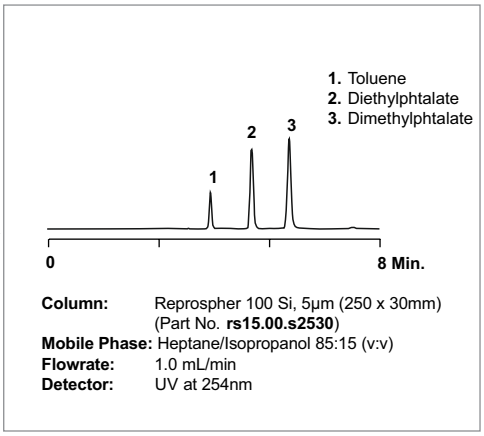
Standard QC + Scalability



Column: Reprospher 100 Si, 5µm (250 x 4.6mm)
(Part No. **rs15.00.s2546**)
Mobile Phase: Heptane/Isopropanol 85:15 (v:v)
Flowrate: 1.0 mL/min
Detector: UV at 254nm

Same performance
Analytical to Prep

Easy Upscaling



Column: Reprospher 100 Si, 5µm (250 x 30mm)
(Part No. **rs15.00.s2530**)
Mobile Phase: Heptane/Isopropanol 85:15 (v:v)
Flowrate: 1.0 mL/min
Detector: UV at 254nm

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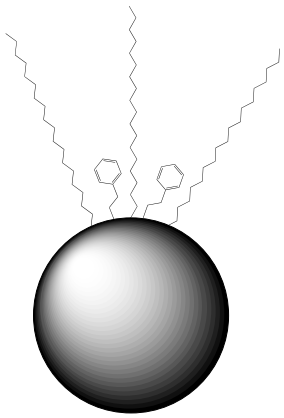
Unique Modifications

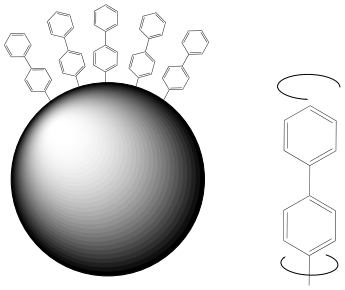
Reprospher C18-Phenyl



Useful facts:
- Bimodal separation mechanism
- alternative selectivity to C18
- compatible with highly aqueous conditions
- pH 1-8

Recommended application fields:
- standard RP
- for aromatic compound

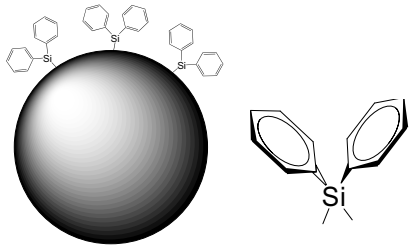
Reprospher Biphenyl



Useful facts:
- combination of hydrophobic, aromatic, and polar selectivity
- highly retentive to aromatic compounds
- compatible with highly aqueous conditions
- sterically active (linear rotation)
- pH 1-8

Recommended application fields:
- standard RP
- for Peptides & aromatic compounds

Reprospher Diphenyl

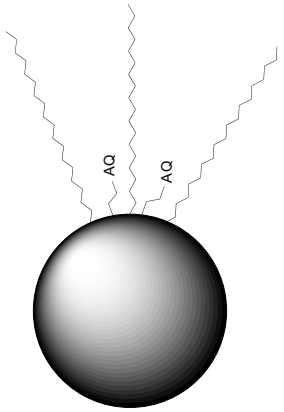


Useful facts:
- combination of hydrophobic, aromatic, and polar selectivity
- highly retentive to aromatic compunds
- compatible for highly aqueous conditions
- sterically active (tub shape)
- pH 1-8

Recommended application fields:
- standard RP
- for Peptides & aromatic compounds

Unique Modifications

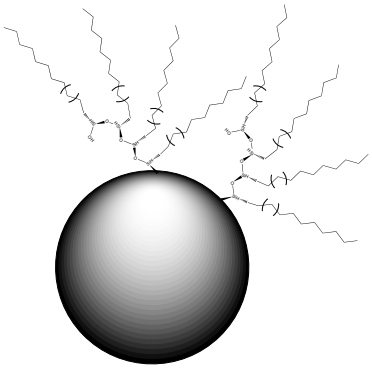
Reprospher C18-Aqua



Useful facts:
- Special C18 Bonding technique.
- Endcapping with polar groups
- Suitable for 100% Water
- pH 1-8

Recommended application fields:
- standard RP
- SFC
- polar & hydrophilic compounds under highly aqueous conditions

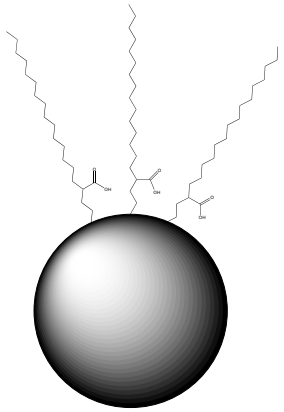
Reprospher C18-T Type



Useful facts:
- Polymeric C18 Modification
- high carbon load
- Endcapped or non endcapped available
- steric recognition
- pH 1-9

Recommended application fields:
- standard RP
- „high loading capacity“

Reprospher C18-WCX

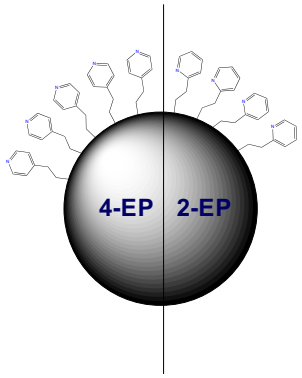


Useful facts:
- acidic Shield technology
- Carboxylic side chains directly connected to the alkyl spacer
- Not endcapped
- mixed mode (RP + weak cation exchanger)
- pH 2.5 - 7.5

Recommended application fields:
- RP
- SFC (for acidic and basic compounds)

Unique Modifications for SFC

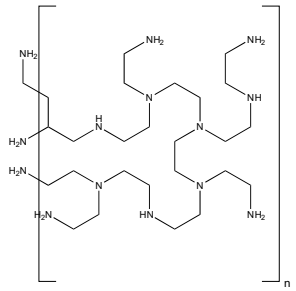
Reprospher 2-EP and 4-EP



Useful facts:
- ideal for strongly basic analytes
- hydrophilic selector
- no amines needed as additives
- Designed for achiral SFC separations

Recommended application fields:
- RP
- SFC

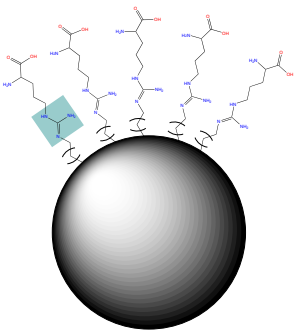
Reprospher PEI



Useful facts:
- fully coated Silica + crosslinked
- for highly basic analytes
- universal SFC Phase

Recommended application fields:
- NP
- HILIC
- SFC
- WAX for peptides & oligonucleotides

Reprospher ARG

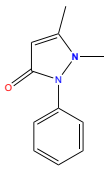


Useful facts:
- Arginine covalently bonded
- highly hydrophilic
- for polar compound
- Shield techology
- Zwitter-ionic

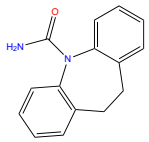
Recommended application fields:
- NP
- HILIC
- SFC

Tuning the separation selectivity by using different modifications

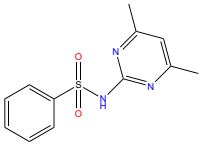
1. Antipyrine



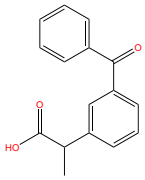
2. Carbamazepine

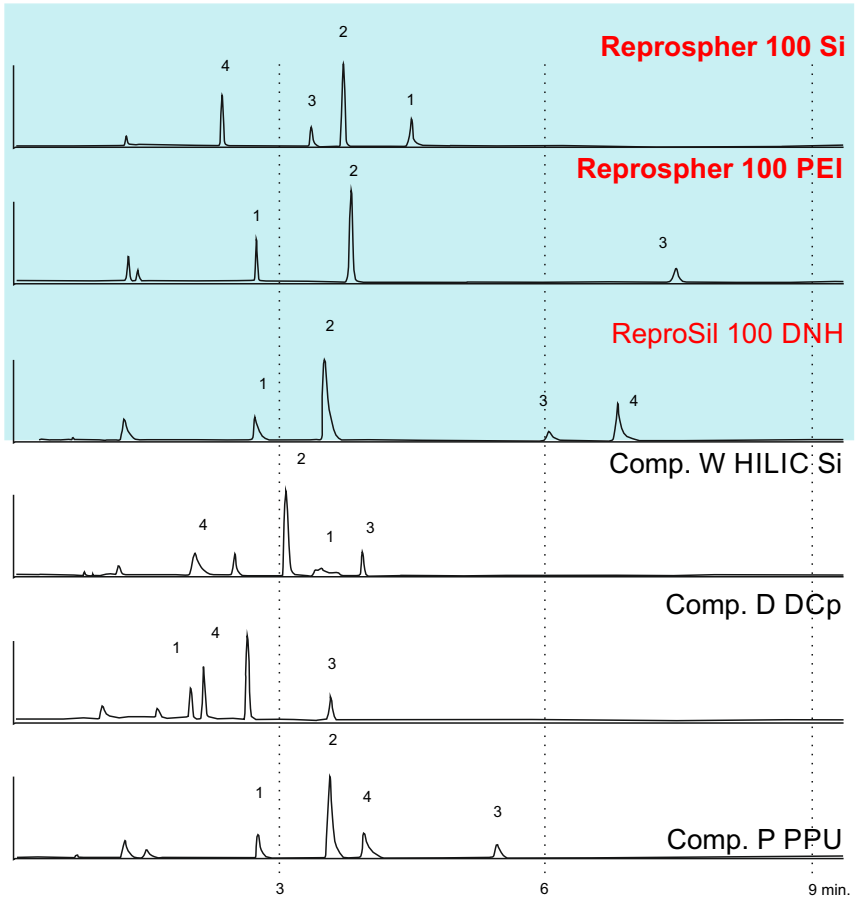


3. Sulamethazine



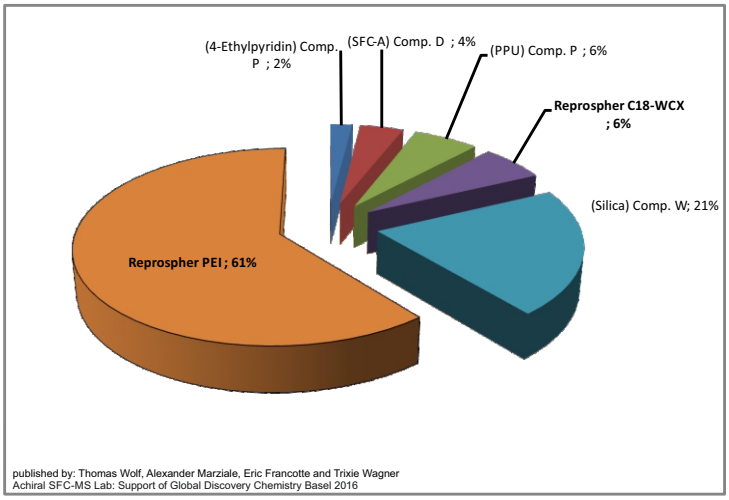
4. Ketoprofen





Mobile Phase: Co_2 + MeOH (5-50% in 6 min)
Flowrate: 1.0 mL/min
Detector: UV at 254nm
Dimension: 250 x 4.6 mm

published by: Eric Francotte (Novartis)
8th International Conference on packed column SFC, Oct 2014, Basel



published by: Thomas Wolf, Alexander Marziale, Eric Francotte and Trixie Wagner
Achiral SFC-MS Lab: Support of Global Discovery Chemistry Basel 2016

„Reprospher PEI: One of the most versatile phases for achiral SFC“

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