

Exmere Ltd.
Silica Engineering

Exsil Pure™
Ultra High Purity Phases

Over 30 Years of Experience

Exsil Pure™



IMPOSSIBLE

Discover new Possibilities

Silica Bulk for HPLC

The Best for the Best

- Highly Efficient and Perfect Reproducibility
- Exceptional Performance
- Extraordinary Selectivities

visit us @



Exsil Pure	Specifications
Impurities	Alkali metals : less than 300 ppb Heavy metals: less than 100 ppb
Surface Area	230 m ² /g
Pore Size	120Å
Pore Volume	0.7 ml/g
Particle Size	1.5 ,3 ,3.5 ,5 ,7 and 10µm

Why Exsil Pure?

Exmere Ltd. sets a new standard in HPLC packing media. We make everything - from the silica particle to the finished product. Our unique manufacturing process allows to deliver the highest performance, at an exceptional value!

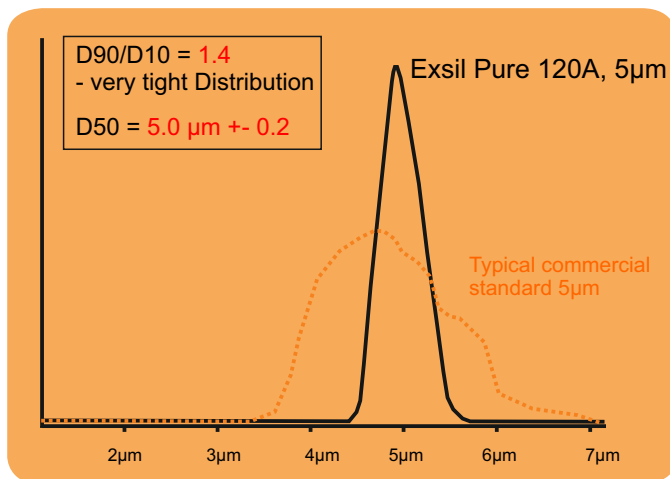
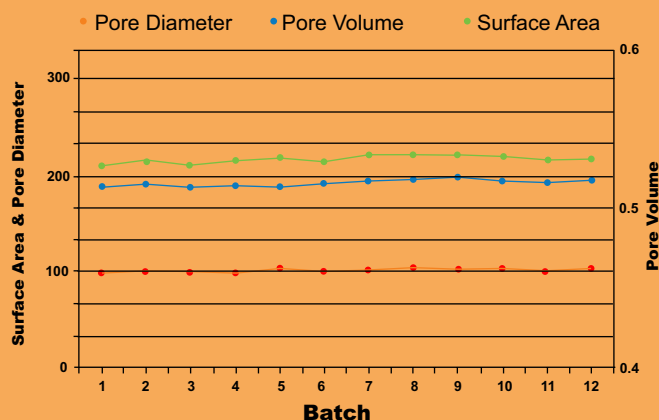
Benefits

- + Easy Column Packing
- + Fully Scaleable from UPLC to Prep
- + Perfect particle strength
- + Unique bonding technology
- + High Loading Capacity
- + Very High Alkyl Loaded (pH stable up to 11)
- + Available up to 25 kg

+ Tailormade Modifications on Request!

We are optimising your application

Highly Reproducible Parameters



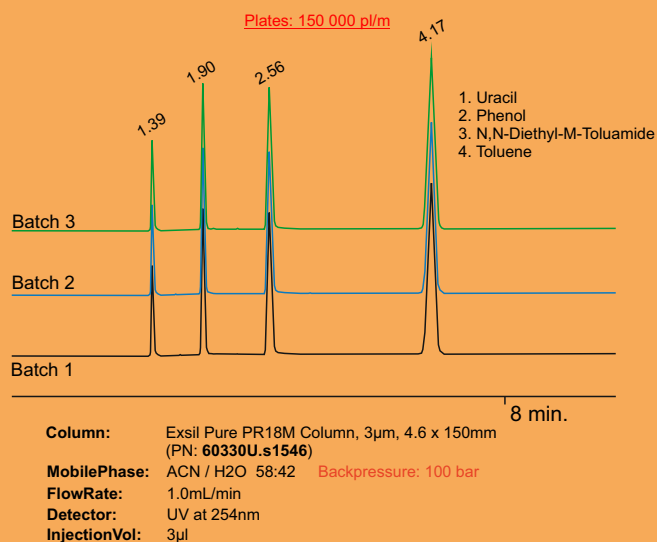
Reproducible Methods Start with Reproducible Silica Bulk

Our tightly controlled silica synthesis and bonding keep capacity factor and selectivity variations to a minimum. The advanced packing methods deliver consistently high column-to-column selectivity and efficiency.

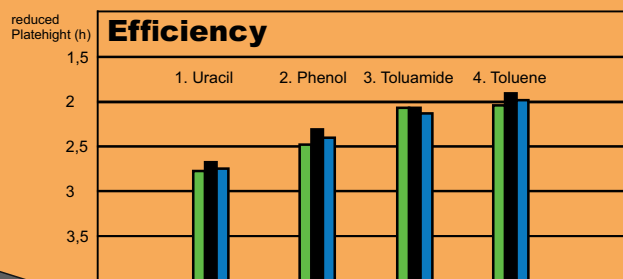
Expect Competitive Performance

Exsil Pure columns show perfect efficiency and symmetries for challenging base and acid and chelat components in comparison to industry leading columns!

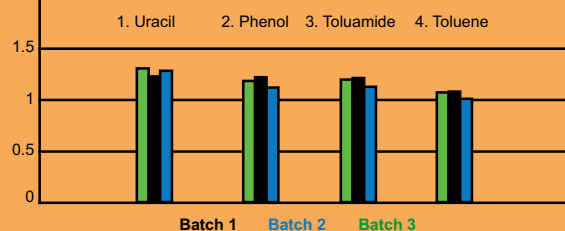
Highly Reproducible Selectivity



Consistent batch-to-batch capacity



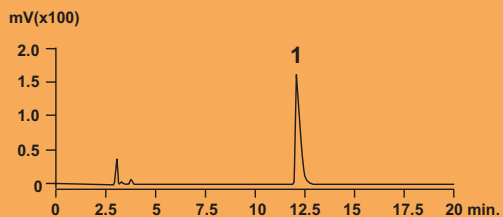
Asymmetry



High Efficiency and perfect Symmetry

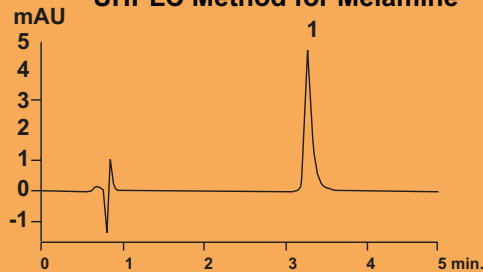
Exsil Pure Silica

HPLC Method for Melamine



HPLC Column: Exsil Pure Si, 5µm, 4.6 x 250mm
Mobile Phase: Acetonitrile:10mM Ammonium Acetate in Water (95:5)
Flow Rate: 1mL/min
Detection: UV at 240nm
Column Temp: 30°C
Injection: 40µg/mL x 20µL

UHPLC Method for Melamine



UHPLC Column: Exsil Pure Si, 1.5µm, 2 x 50mm (PN: 60100U.s2546)
Mobile Phase: Acetonitrile:10mM Ammonium Acetate in Water (95:5)
Flow Rate: 0.2mL/min
Detection: UV at 240nm
Column Temp: 30°C
ELSD 3300: Drift tube 40°C, gas 1.8L/min, gain x 4
Injection: 50µg/mL x 0.5µL

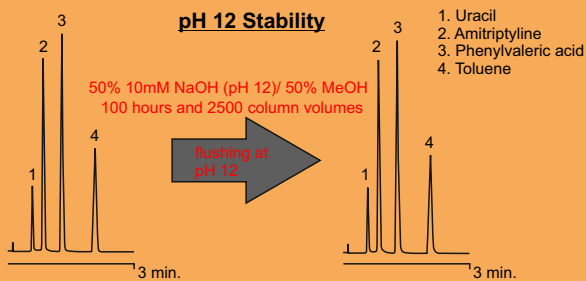
Exsil Pure RP18

Carbon 8%

Harsh conditions? no Problem! pH 1 - 12

Exsil Pure RP18, 5µm

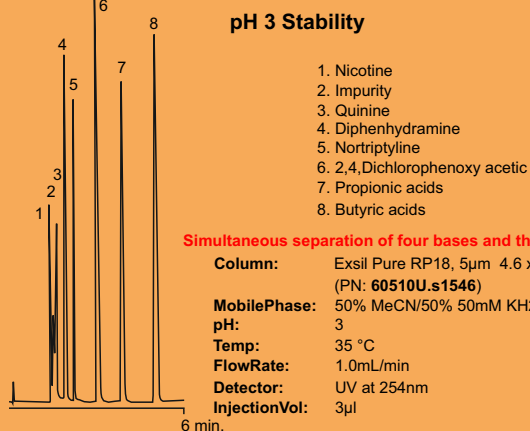
pH 12 Stability



Column: Exsil Pure RP18, 4.6 x 50mm, 5µm (PN: 60510U.s0546)
MobilePhase: 50% MeCN / 50% 50mM KH2PO4, pH3 and 35°C
FlowRate: 1.0mL/min
Detector: UV at 254nm
InjectionVol: 3µl

Exsil Pure RP18, 5µm

pH 3 Stability



Simultaneous separation of four bases and three acids.

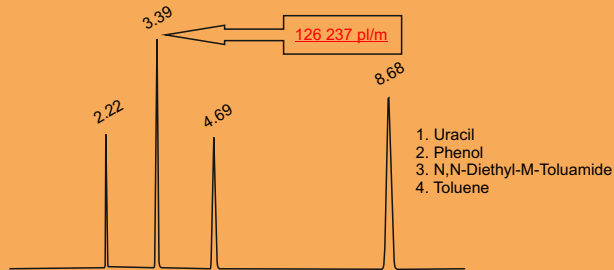
Column: Exsil Pure RP18, 5µm 4.6 x 150mm (PN: 60510U.s1546)
MobilePhase: 50% MeCN/50% 50mM KH2PO4
pH: 3
Temp: 35 °C
FlowRate: 1.0mL/min
Detector: UV at 254nm
InjectionVol: 3µl

Exsil Pure RP18M

Carbon 11%

High efficiency for small and large molecules

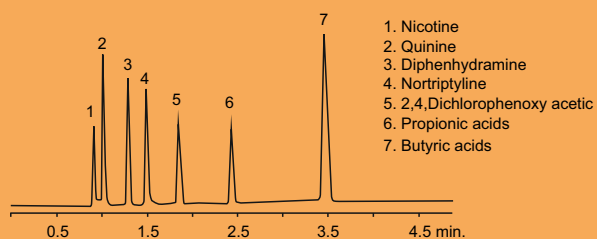
Exsil Pure RP18M, 5µm



Column: Exsil Pure RP18M Column, 5µm, 4.6 x 250mm (PN: 60570U.s2546)
MobilePhase: ACN / H2O 58:42
FlowRate: 1.0mL/min **Backpressure: 85 bar**
Detector: UV at 254nm
InjectionVol: 3µl

Exsil Pure RP18M, 5µm

pH 3 Stability



Column: Exsil Pure RP18M, 5µm 4.6 x 150mm (PN: 60570U.s1546)
MobilePhase: 50% MeCN/50% 50mM KH2PO4
pH: 2.8
Temp: 35 °C
FlowRate: 1.0mL/min
Detector: UV at 254nm

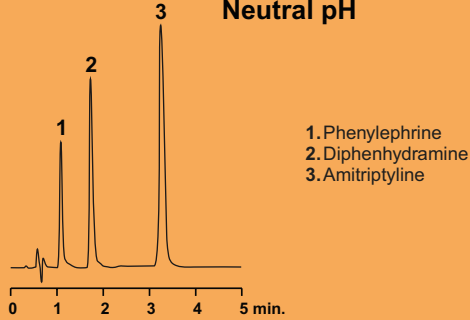
Exsil Pure C18MS

Difficult acids/bases or chelates? **No Problem!**

Outstanding features of Exsil Pure C18MS:

+ High Polarity:	Different selectivity to current phases.	+ Compatible with MS buffers:	Good with volatile buffers
+ High Base Retention:	Uses high % organic: aids MS detection	+ High Stability:	No embedded phase to limit stability.
+ Acids, Bases, Chelates:	All the benefits of pure silica.	+ Low MS bleed:	Aids MS Detection
+ 100% Aqueous Stability:	Resists phase collapse		

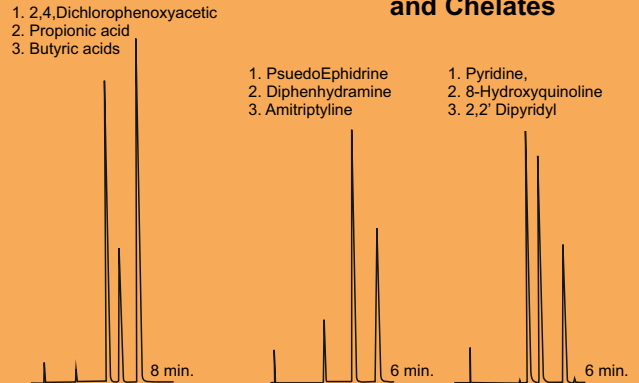
Separate Highly Basic Components at Neutral pH



1. Phenylephrine
2. Diphenhydramine
3. Amitriptyline

Column: Exsil Pure C18MS, 1.5µm, 2.0x50mm (PN: 60120U.s0502)
Mobile Phase: 50mM Ammonium Formate pH 7: Methanol(20:80)
Column Temp: 40°C
Flow Rate: 0.2mL/min
Detector: UV at 210nm

Excellent Peak Shape for Acids, Bases and Chelates



1. 2,4-Dichlorophenoxyacetic
2. Propionic acid
3. Butyric acids

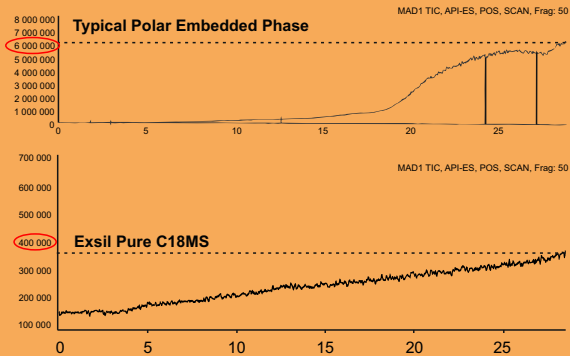
1. PsuedoEphidrine
2. Diphenhydramine
3. Amitriptyline

1. Pyridine,
2. 8-Hydroxyquinoline
3. 2,2' Dipyridyl

Column: Exsil Pure C18MS, 5µm, 4.6 x 150mm (PN: 60520U.s1546)
Mobile Phase: 50% MeCN / 50% 50 mM KH₂PO₄, pH 3, 35°C
Flow Rate: 1.0mL/min

MS Bleeding reduced by Factor 17

Comparison of MS Bleeding



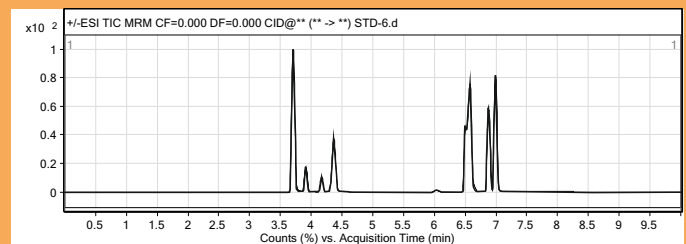
Exsil Pure C18MS shows minimal bleed when used in LC/MS with TFA gradients. The first trace shows bleed levels typical of polar embedded/endcapped product

4 Important Benefits

- Higher methanol level for improved MS sensitivity
- 2.5 x lower ammonium formate entering the MS (10% aqueous vs. 25%)
- Half the backpressure due to lower viscosity.
- Faster analysis due to the potential to use higher flowrate without excessive backpressure.

Pesticides

Column: Exsil Pure C18MS, 1.5µm, 100x2 mm
Mobile Phase: A: Water
B: Acetonitrile
Gradient: A: 0 | 2 | 3 | 5 | 6 | 8 | 8.1 | 10 |
B: 5 | 5 | 35 | 35 | 95 | 95 | 5 | 5 |
Flow Rate: 0.4 ml/min
Detector: 6400 Series Triple Quadrupole



Fragmentor Voltage 150 Collision Energy 45 Ionization Mode ESI

Exsil Pure C18MS

MS Applications

Quinolones (200ppb)

Column: Exsil Pure C18MS, 1.5µm, 100x2 mm

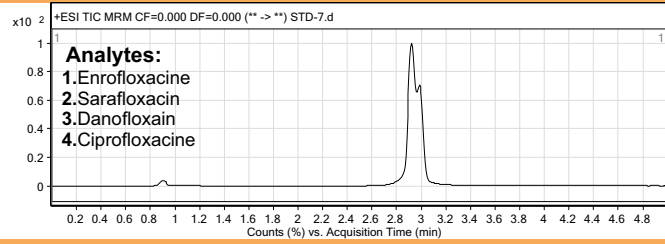
Mobile Phase: A: Water
B: Acetonitrile

Gradient

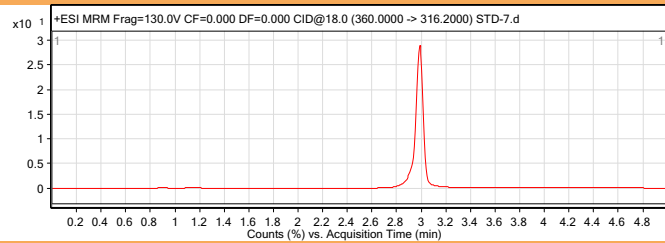
Time:	0	1	3	4	4.1	5
B:	10	10	90	90	10	10

Flow Rate: 0.4 ml/min

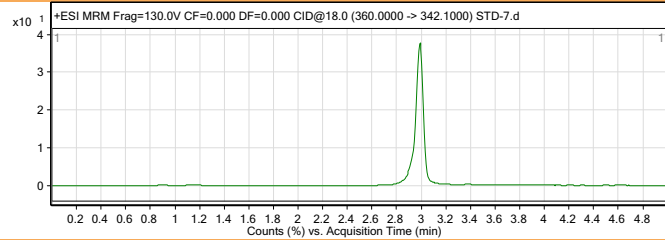
Detector: 6400 Series Triple Quadrupole



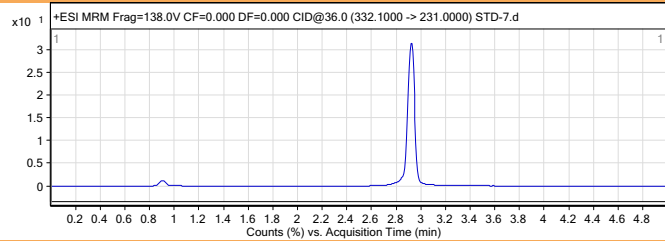
Fragmentor Voltage 130 Collision Energy 18 Ionization Mode ESI



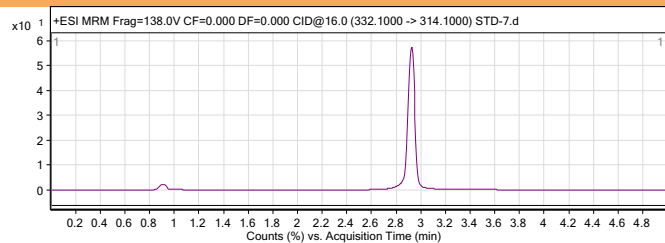
Fragmentor Voltage 130 Collision Energy 18 Ionization Mode ESI



Fragmentor Voltage 138 Collision Energy 16 Ionization Mode ESI



Fragmentor Voltage 138 Collision Energy 16 Ionization Mode ESI



Malachite Green and crystal violet residues

Column: Exsil Pure C18MS, 1.5µm, 100x2 mm

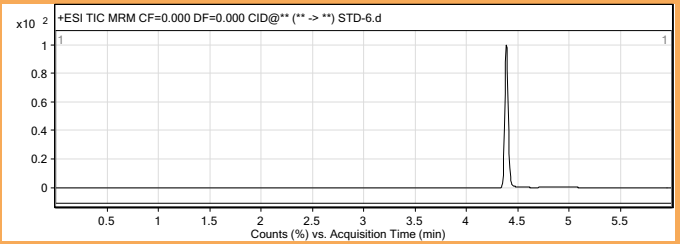
Mobile Phase: A: Water
B: Acetonitrile

Gradient

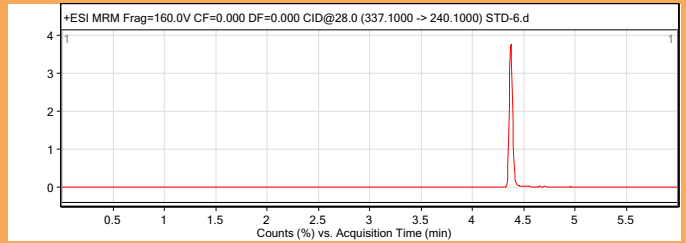
Time:	0	1	3	5	5.1	6
B:	10	10	95	95	10	10

Flow Rate: 0.3 ml/min

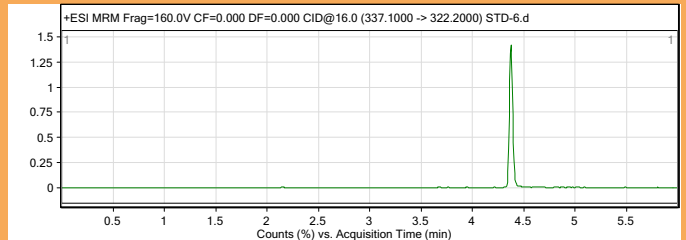
Detector: 6400 Series Triple Quadrupole



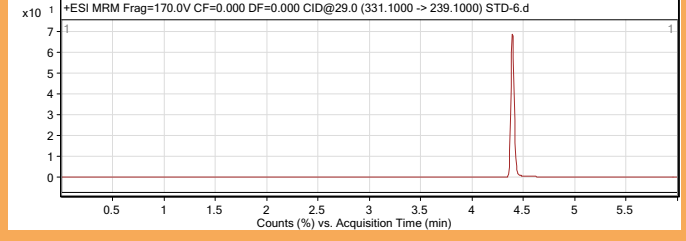
Fragmentor Voltage 160 Collision Energy 28 Ionization Mode ESI



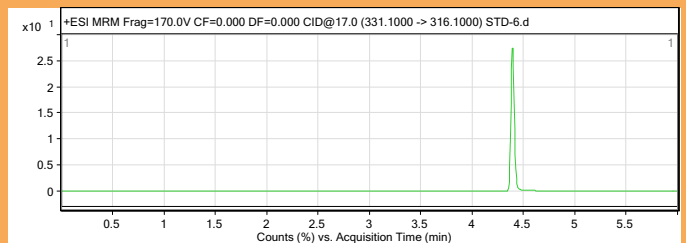
Fragmentor Voltage 160 Collision Energy 16 Ionization Mode ESI



Fragmentor Voltage 170 Collision Energy 29 Ionization Mode ESI



Fragmentor Voltage 170 Collision Energy 17 Ionization Mode ESI



Different Selectivities to Meet All Needs

Exsil Pure C18 Phases

•Exceptional stability for long column life times

Exsil Pure RP18M

- Monolayer bonding technology
- High density C18 bonding
- Double endcapped
- pH stable up to 11
- suitable for ELSD

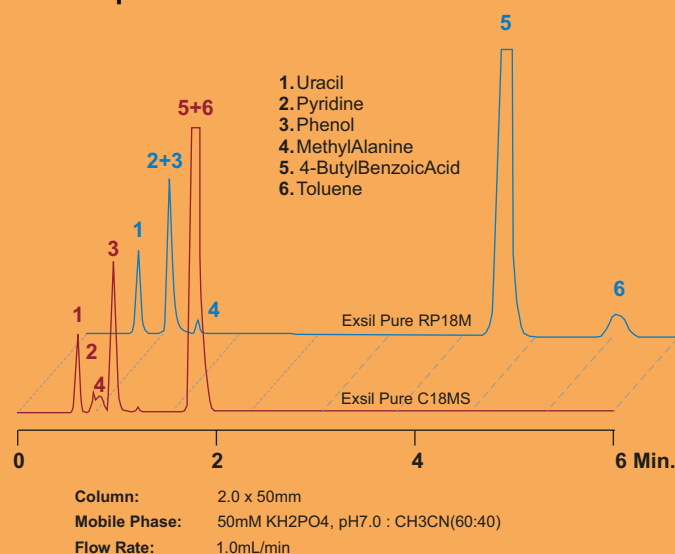
Exsil Pure RP18

- Monolayer bonding technology
- Double endcapped
- 100% Water suitable
- Perfect stability
- pH stable

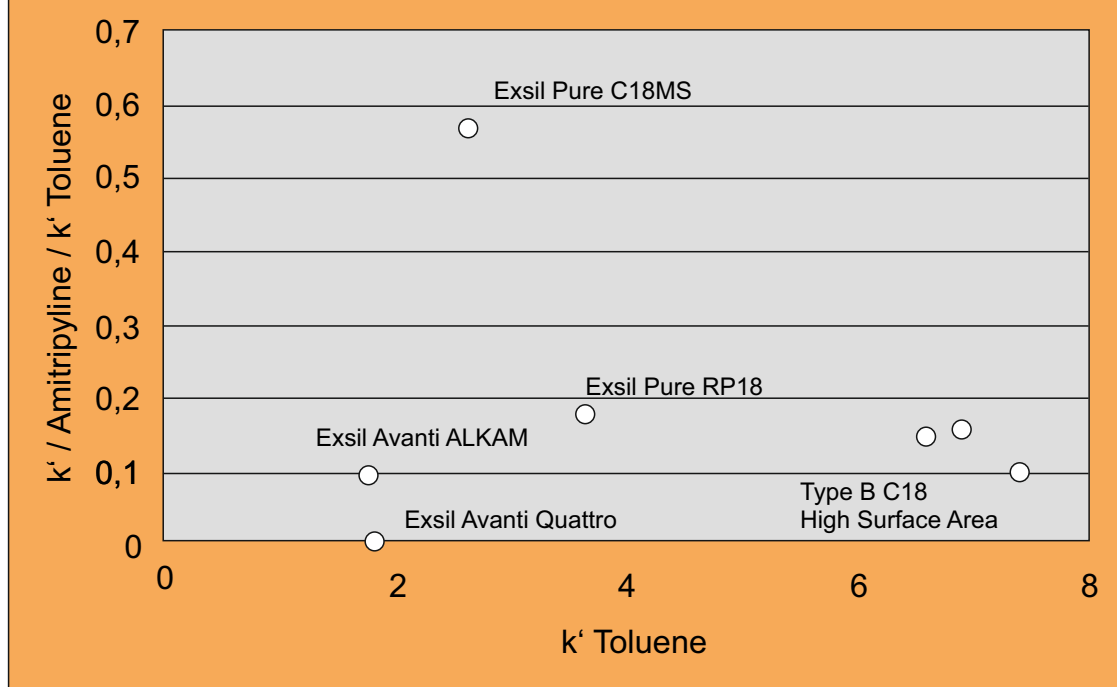
Exsil Pure C18MS

- lower Carbonloading
- perfect stability
- 100% water suitable
- suitable for MS
- suitable for ELSD
- low bleeding

Comparison of Exsil Pure RP18M and C18MS



Hydrophobic/Silanophilic Balance at pH 3



Nothing is impossible!

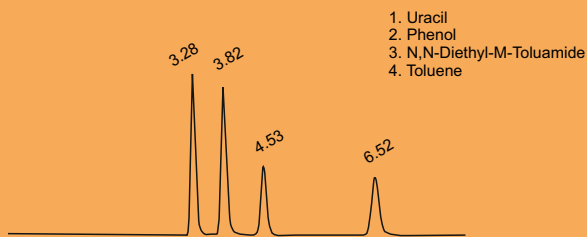
You've just to choose the right C18 phase

Choose Exsil Pure for Preparative Separation

Columns up to 100 mm iD

Exsil Pure RP18M, 10µm

~ 50 000 µl/m



1. Uracil
2. Phenol
3. N,N-Diethyl-M-Toluamide
4. Toluene

Column: Exsil Pure RP18M Column, 10µm, 20 x 250mm
(PN: 61010P.s2520)

MobilePhase: MeOH / H₂O 80:20

FlowRate: 15mL/min

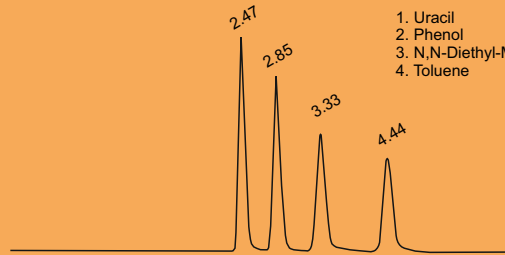
Detector: UV at 254nm

InjectionVol: 3µl

Backpressure: 35 bar

Exsil Pure C8, 10µm

~ 50 000 µl/m



1. Uracil
2. Phenol
3. N,N-Diethyl-M-Toluamide
4. Toluene

Column: Exsil Pure C8 Column, 10µm, 25 x 150mm
(PN: 61013P.s2520)

MobilePhase: MeOH / H₂O 80:20

FlowRate: 20mL/min

Detector: UV at 254nm

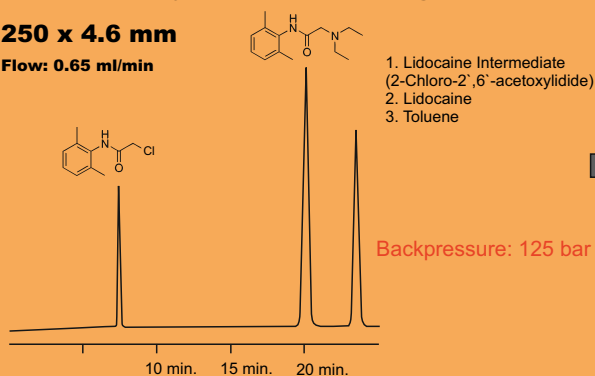
InjectionVol: 3µl

Backpressure: 15 bar

Easy Linear Upscaling

250 x 4.6 mm

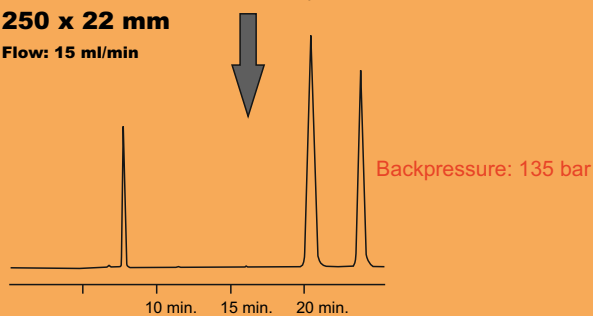
Flow: 0.65 ml/min



Backpressure: 125 bar

250 x 22 mm

Flow: 15 ml/min

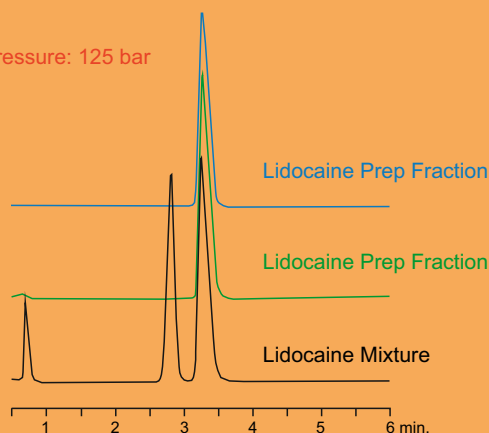


Backpressure: 135 bar

Column: Exsil Pure 120 RP18M, 5µm
Mobile Phase: 60:40 MeOH : 25 mM Ammonium Carbonate pH 6.95
Detector: UV at 254 nm

Quality control with sub-2 µm

Backpressure: 125 bar



Column: Exsil Pure 120 RP18M, 1.5µm
Dimension: 20 x 2.0 mm
Mobile Phase: 50:50 MeOH : 25 mM Ammonium Carbonate pH 7
Flow: 0.2 ml/min
Detector: UV at 254 nm

packed by

Dr. Maisch GmbH

Any Column, Any Size, Any Media

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