

**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 @

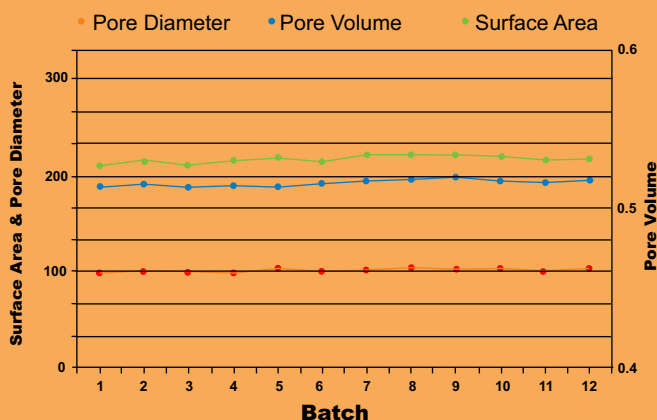


Exsil Pure	Specifications
Impurities	Alkali metals : less than 300 ppb Heavy metals: less than 100 ppb
Surface Area	230 m <sup>2</sup> /g
Pore Size	120Å
Pore Volume	0.7 ml/g
Particle Size	1.5 ,3 ,3.5 ,5 ,7 and 10µm

## 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!

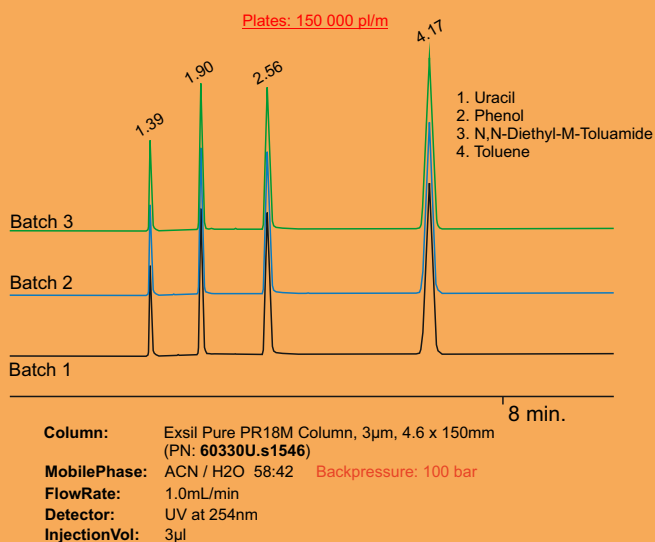
### Highly Reproducible Parameters



### 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.

### Highly Reproducible Selectivity



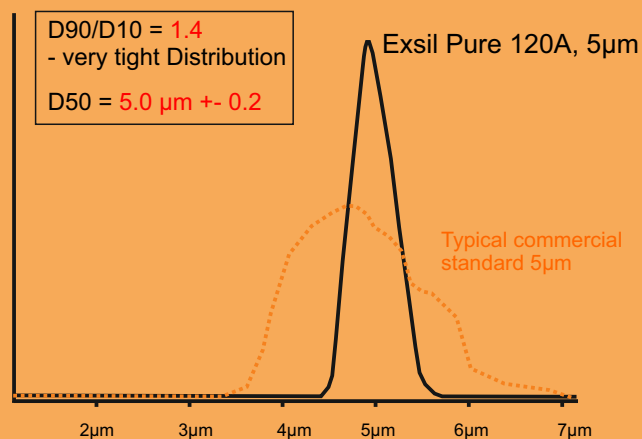
Consistent batch-to-batch capacity

### 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

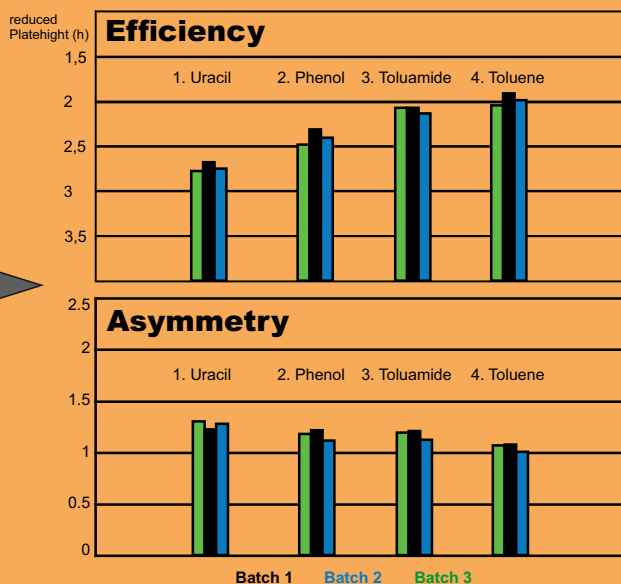
+ Tailormade Modifications on Request!

**We are optimising your application**



### Expect Competitive Performance

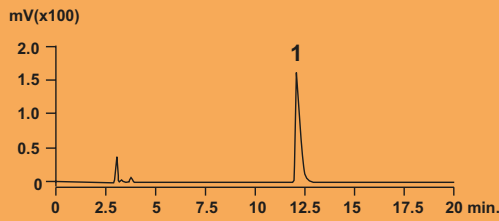
Exsil Pure columns show perfect efficiency and symmetries for challenging base and acid and chelat components in comparison to industry leading columns!



High Efficiency and perfect Symmetry

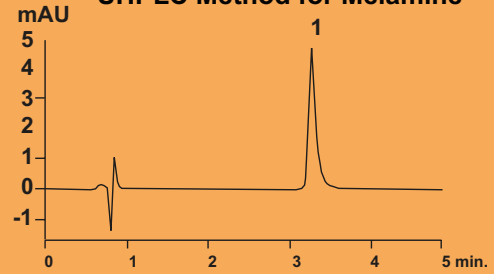
# Exsil Pure Silica

## 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

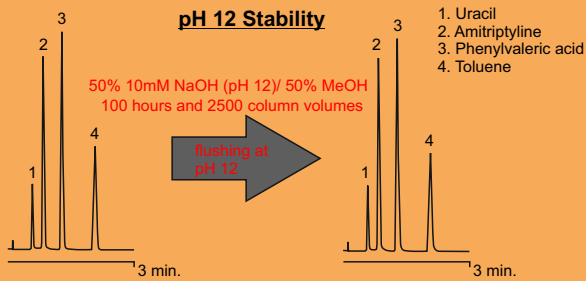
# Exsil Pure RP18

Carbon 8%

**Harsh conditions? No problem! pH 1 - 12**

## Exsil Pure RP18, 5µm

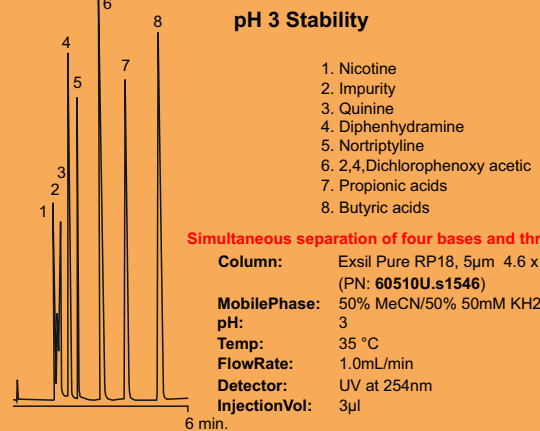
### pH 12 Stability



**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.**

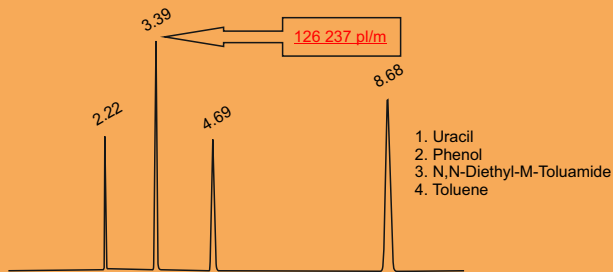
**Column:** Exsil Pure RP18, 5µm 4.6 x 150mm (PN: 60510U.s1546)  
**MobilePhase:** 50% MeCN/50% 50mM KH2PO4  
**pH:** 3  
**Temp:** 35 °C  
**FlowRate:** 1.0mL/min  
**Detector:** UV at 254nm  
**InjectionVol:** 3µl

# Exsil Pure RP18M

Carbon 11%

**High efficiency for small and large molecules**

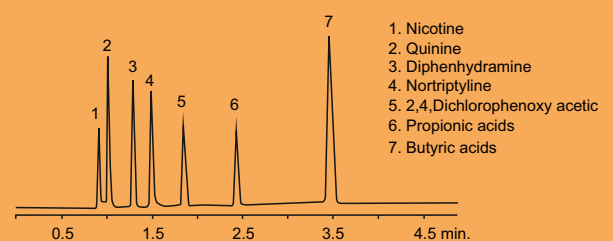
## Exsil Pure RP18M, 5µm



**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

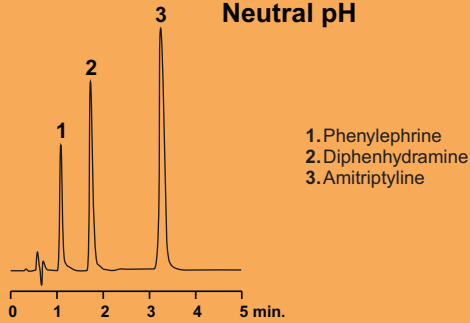
# Exsil Pure C18MS

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

### Outstanding features of Exsil Pure C18MS:

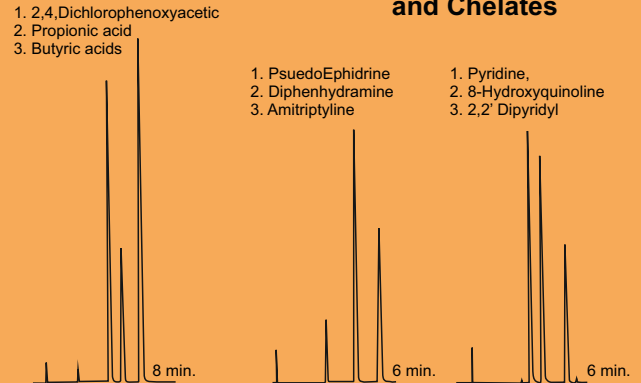
+ High Polarity:	Different selectivity to current phases.	+ Compatible with MS buffers:	Good with volatile buffers
+ High Base Retention:	Uses high % organic: aids MS detection	+ High Stability:	No embedded phase to limit stability.
+ Acids, Bases, Chelates:	All the benefits of pure silica.	+ Low MS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

### Separate Highly Basic Components at Neutral pH



Column: Exsil Pure C18MS, 1.5 $\mu$ m, 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

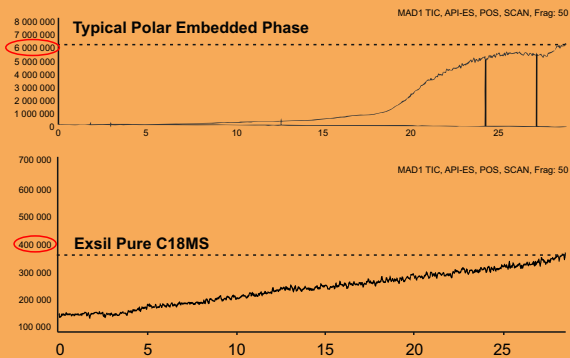
### Excellent Peak Shape for Acids, Bases and Chelates



Column: Exsil Pure C18MS, 5 $\mu$ m, 4.6 x 150mm (PN: 60520U.s1546)  
Mobile Phase: 50% MeCN / 50% 50 mM KH<sub>2</sub>PO<sub>4</sub>, pH 3, 35°C  
Flow Rate: 1.0mL/min

## MS Bleeding reduced by Factor 17

### Comparison of MS Bleeding



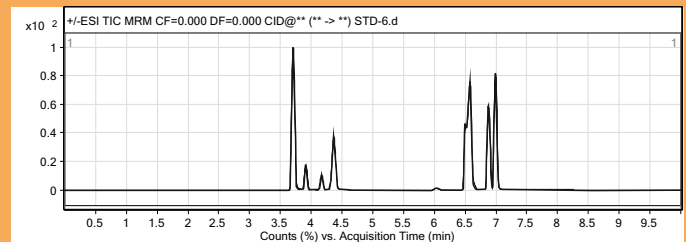
Exsil Pure C18MS shows minimal bleed when used in LC/MS with TFA gradients. The first trace shows bleed levels typical of polar embedded/endcapped product

### 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, 1.5 $\mu$ m, 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

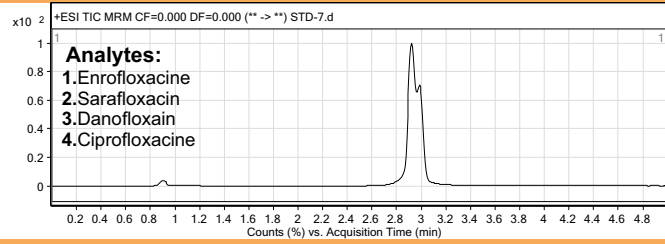
Mobile Phase: A: Water  
B: Acetonitrile

Gradient

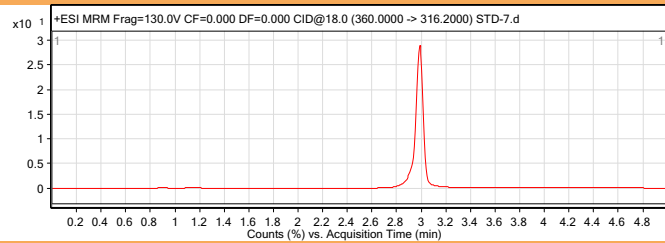
Time:	0	1	3	4	4.1	5
B:	10	10	90	90	10	10

Flow Rate: 0.4 ml/min

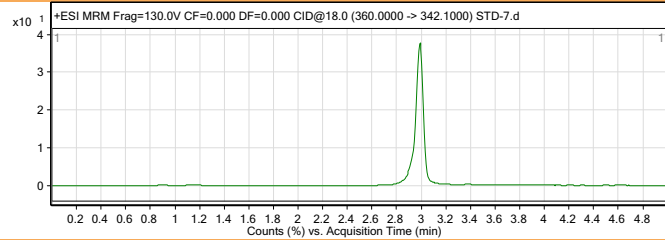
Detector: 6400 Series Triple Quadrupole



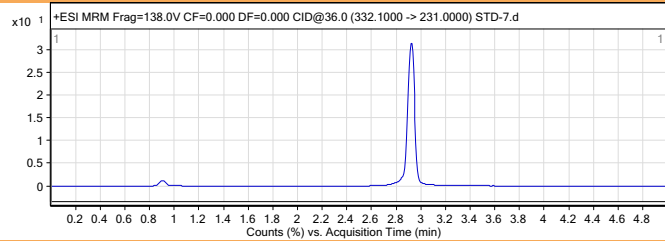
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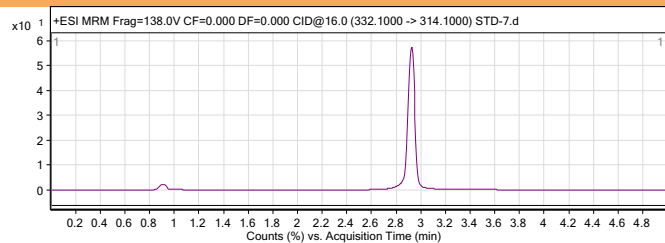
Fragmentor Voltage 130 Collision Energy 18 Ionization Mode ESI



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

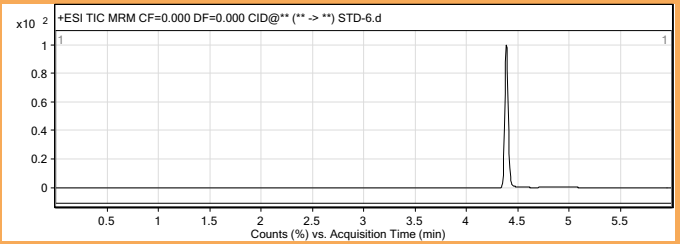
Mobile Phase: A: Water  
B: Acetonitrile

Gradient

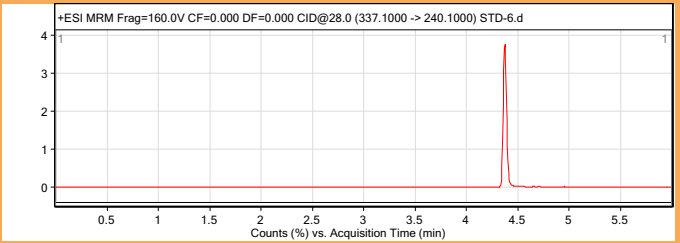
Time:	0	1	3	5	5.1	6
B:	10	10	95	95	10	10

Flow Rate: 0.3 ml/min

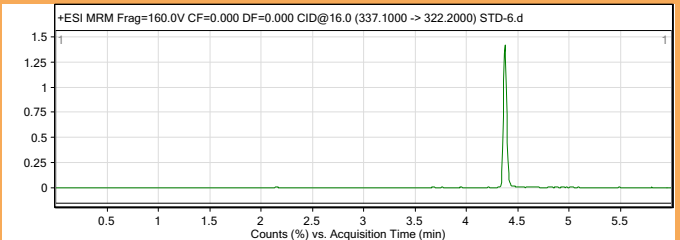
Detector: 6400 Series Triple Quadrupole



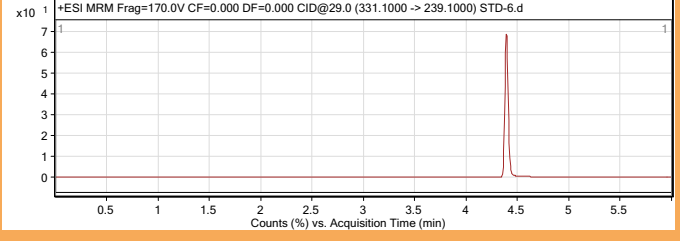
Fragmentor Voltage 160 Collision Energy 28 Ionization Mode ESI



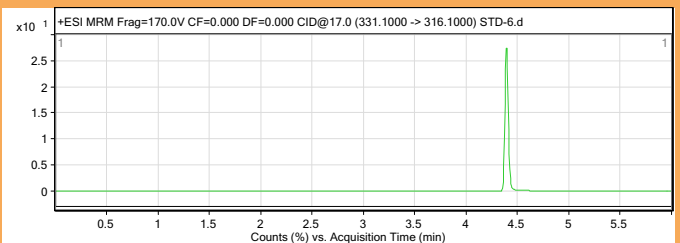
Fragmentor Voltage 160 Collision Energy 16 Ionization Mode ESI



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

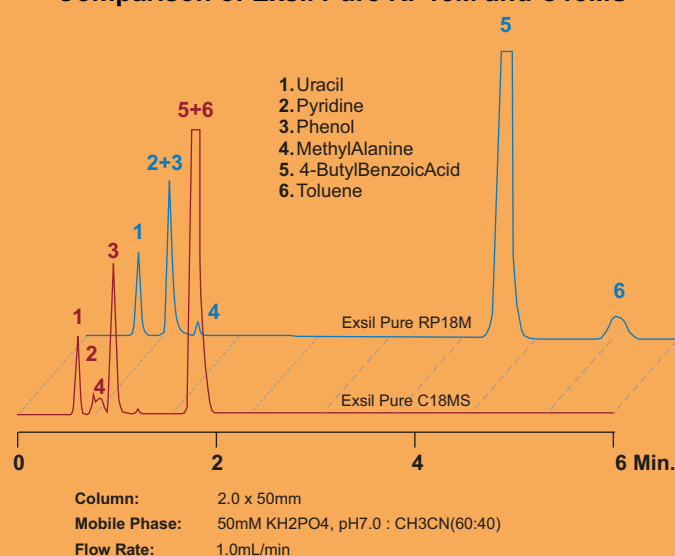
#### Exsil Pure RP18

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

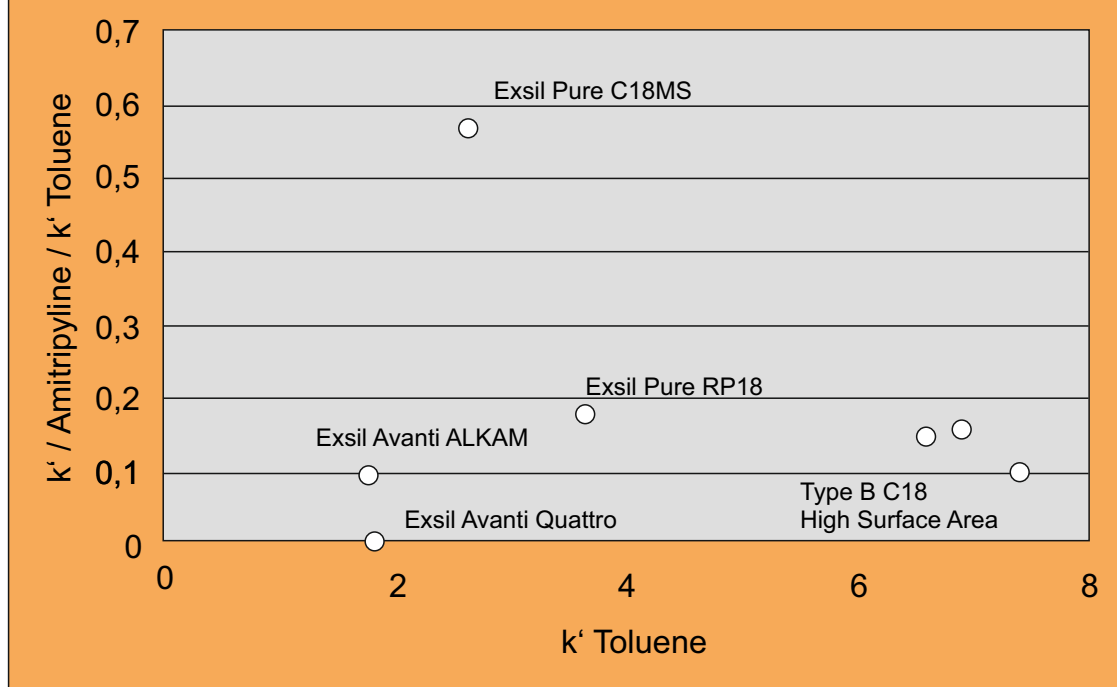
#### Exsil Pure C18MS

- 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!**

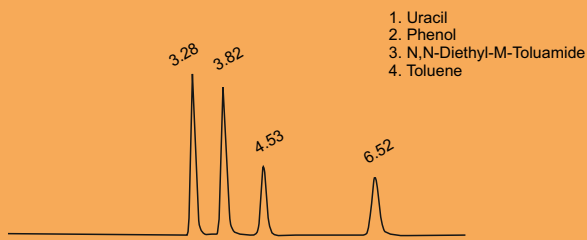
**You've just to choose the right C18 phase**

# Choose Exsil Pure for Preparative Separation

## Columns up to 100 mm iD

### Exsil Pure RP18M, 10µm

~ 50.000 µl/m

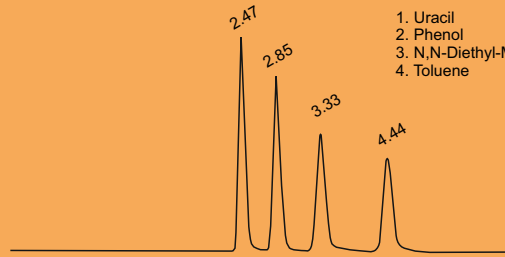


1. Uracil
2. Phenol
3. N,N-Diethyl-M-Toluamide
4. Toluene

**Column:** Exsil Pure RP18M Column, 10µm, 20 x 250mm  
**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



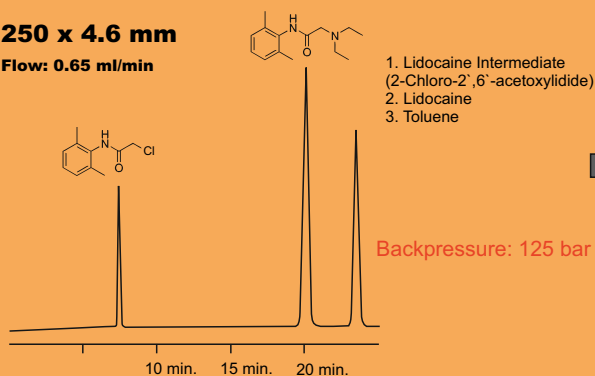
1. Uracil
2. Phenol
3. N,N-Diethyl-M-Toluamide
4. Toluene

**Column:** Exsil Pure C8 Column, 10µm, 25 x 150mm  
**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**

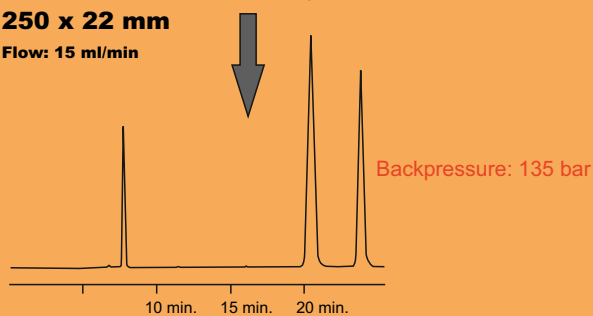
**Flow: 0.65 ml/min**



Backpressure: 125 bar

**250 x 22 mm**

**Flow: 15 ml/min**

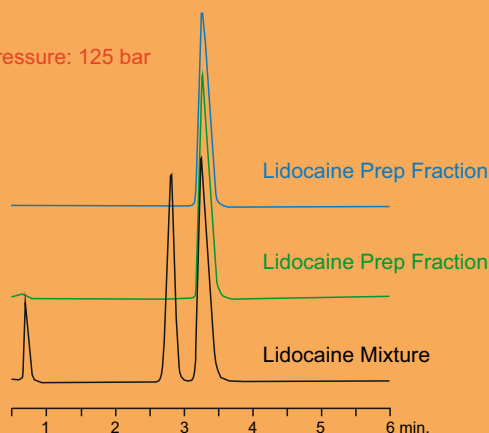


Backpressure: 135 bar

**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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Dealer:



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Silica Engineering

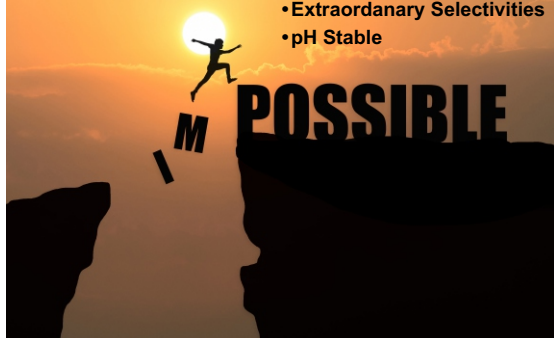
Over 30 Years of Experience

info@exmere.eu

www.exmere.eu

## Exsil Pure™

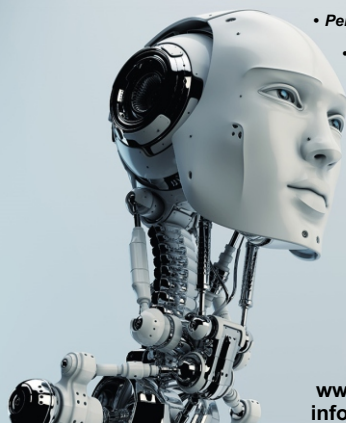
- Perfect Reproducibility
- Exceptional Performance
- Extraordinary Selectivities
- pH Stable



## Exsil Mono™

The Next Generation of Silica

- Monosized Silica Particles
- Perfect Reproducibility
- Exceptional Performance
- Highly Efficient



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• Plus in Selectivities



• Plus in Efficiency

• Perfect Reproducibility

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