

Over 30 Years of Experience



Discover new Possibilities

Silica Bulk for HPLC

The Best For The Best

- Ultra High Efficient
- Perfect Reproducibility
- Exceptional Performance
- Extraordinary Selectivities

Difficult Separations? Choose Exsil Plus!

For Challenging Separations

- Unique selectivity
- Better peak shapes with polar analytes
- More separation choices with dual-selectivity
- Excellent stability and reproducibility
- 1.5µm high-throughput media for speed and resolution, especially when combined with Rocket™ and Expedite™ hardware by Dr Maisch HPLC GmbH

The Exsil Plus Column Advantage

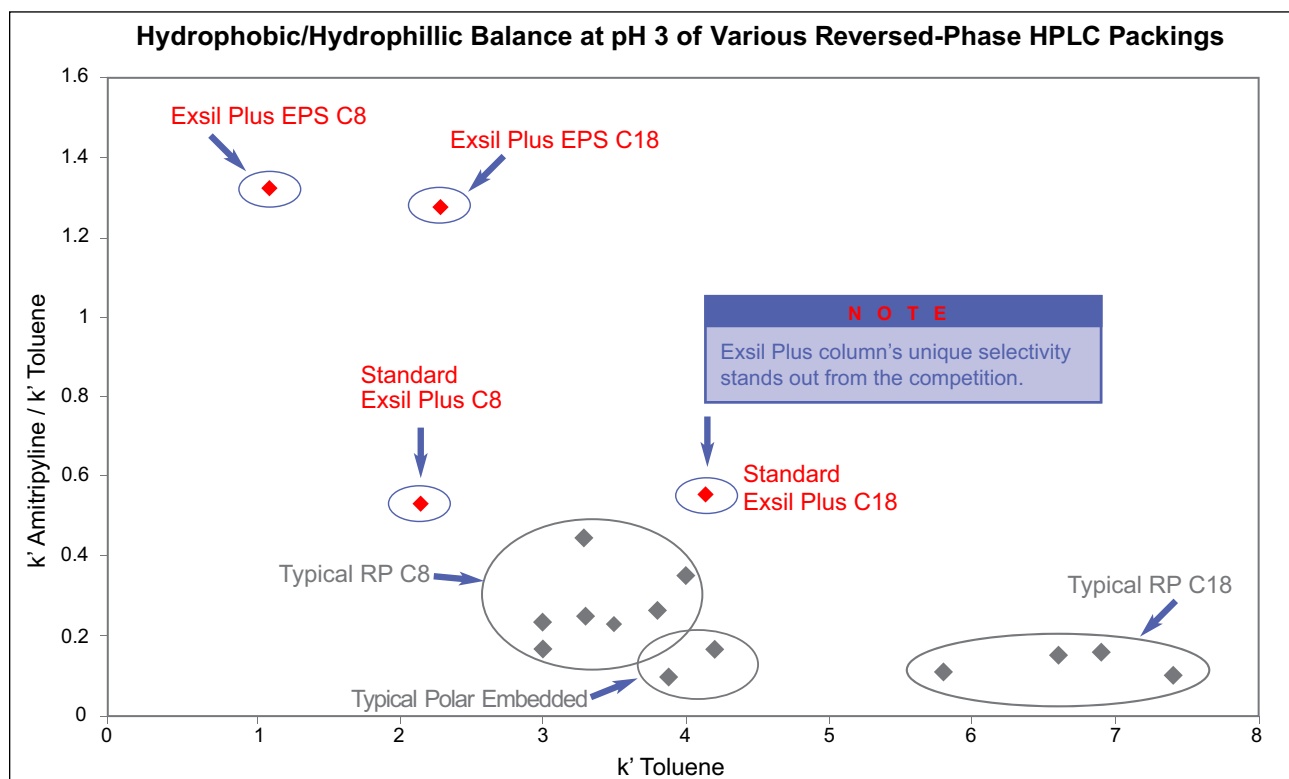
Controlled silica exposure is the difference that makes Exsil Plus columns unique. Instead of thoroughly covering the silica with bonded phase to hide the silica, the exposure of the silica in Exsil Plus columns is controlled to provide a dual mode separation with both polar and non-polar sites exposed to your samples. This extends polar selectivity well beyond what other RP columns offer and gives separations other columns can not.

Standard Exsil Plus Columns vs Exsil Plus EPS Columns

Exsil Plus columns come in two varieties offering different levels of silica exposure. Standard Exsil Plus has a moderate silica exposure and is best used with neutral and moderately polar compounds. Exsil Plus EPS (Extended Polar Selectivity) has a high level of silica exposure and is best used with compounds containing more than two polar functional groups.

Exsil Plus Phase Specifications									
Phase	Base Material	Particle Shape	Particle Size	Pore Size	Surface Area	Carbon Load	Phase Type	Endcapped?	USP L-code
C18	Silica	Spherical	1.5, 3, 5µm	100Å	210m ² /g	6%	Monomeric	Yes	L1
EPS C18	Silica	Spherical	1.5, 3, 5µm	100Å	210m ² /g	5%	Monomeric	No	L1
C8	Silica	Spherical	1.5, 3, 5µm	100Å	210m ² /g	4%	Monomeric	Yes	L7
EPS C8	Silica	Spherical	3, 5µm	100Å	210m ² /g	2.50%	Monomeric	No	L7
Phenyl	Silica	Spherical	3, 5µm	100Å	210m ² /g	—	Monomeric	Yes	L11
Cyano	Silica	Spherical	3, 5µm	100Å	210m ² /g	—	Monomeric	No	L10
Amino (NH ₂)	Silica	Spherical	3, 5µm	100Å	210m ² /g	—	Monomeric	No	L8
Silica	Silica	Spherical	3, 5µm	100Å	210m ² /g	—	—	—	L3
SAX	Silica	Spherical	3, 5µm	100Å	210m ² /g	—	Monomeric	No	—

Trying to solve difficult separation problems using typical reversed-phase columns often leads to the same result. Choose Exsil Plus columns for completely different selectivity. See chart below.

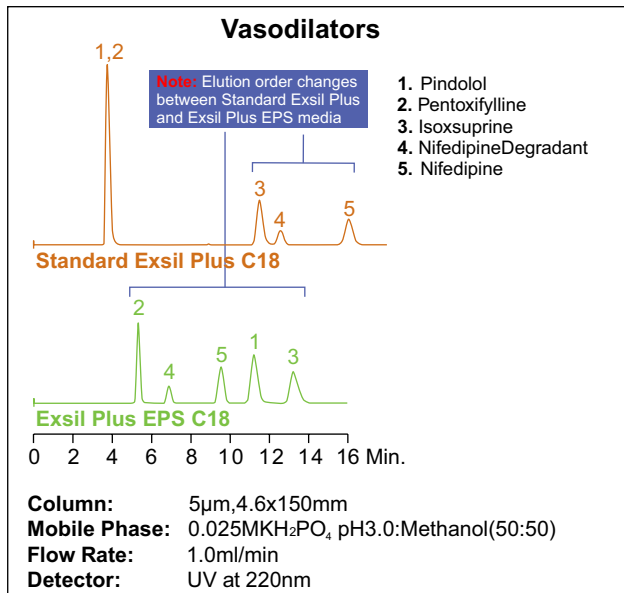


Plotting k' values of different compounds (polar vs. nonpolar) demonstrate the unique selectivity of Exsil Plus and Exsil Plus EPS columns, compared to conventional reversed-phase columns.

Exsil Plus and Exsil Plus EPS will solve your Problems!

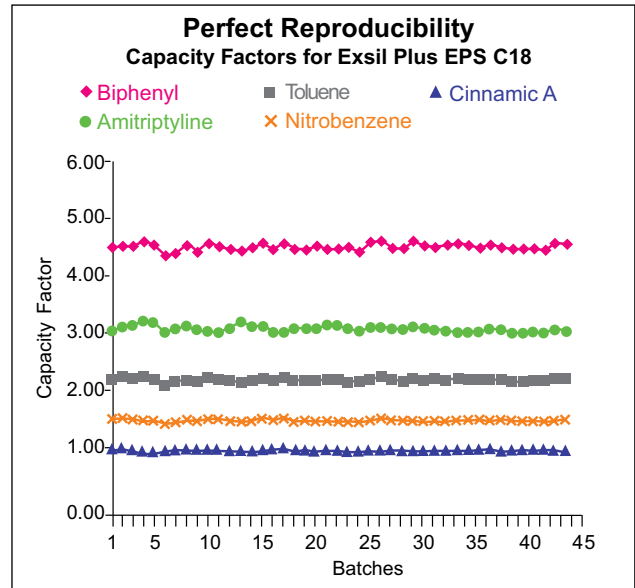
Reverse Elution Order with Standard Exsil Plus and Exsil Plus EPS Columns

Often, it's preferable when minor components elute before, rather than after, closely retained major components.



Exsil Plus EPS Columns Have High Polar Compound Capacity

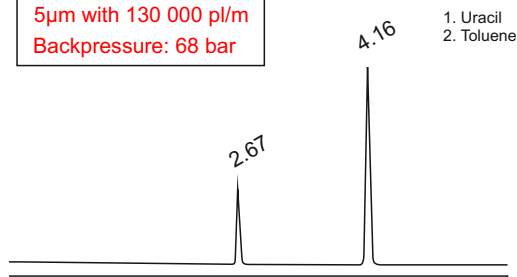
This is important for early eluting polar compounds which are often unresolved on conventional reversed-phase columns.



Not only a Plus in Selectivity but also in Performance!

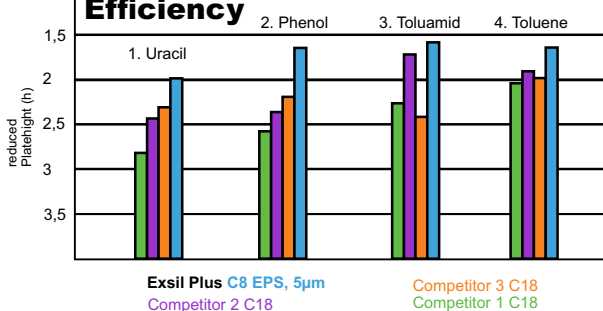
PLUS in Performance on C8 EPS

5µm with 130 000 pl/m
Backpressure: 68 bar



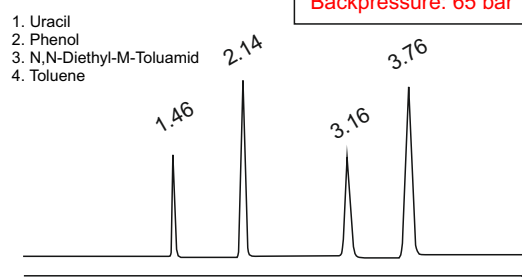
Column: Exsil Plus C8 EPS, 4.6x250mm, 5µm
Mobile Phase: ACN/Water 58:42
Flow Rate: 1.0ml/min
Detector: UV at 254nm

Efficiency



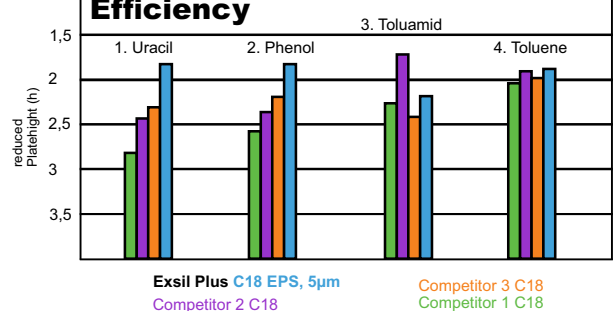
PLUS in Performance on C18 EPS

5µm with 110 000 pl/m
Backpressure: 65 bar



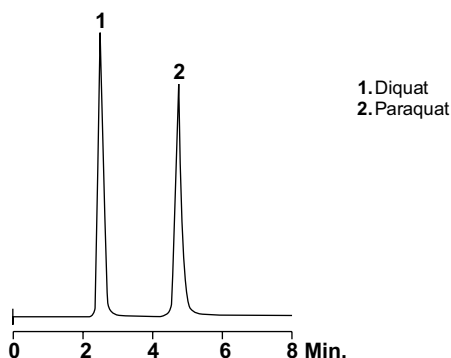
Column: Exsil Plus C18 EPS, 4.6x150mm, 5µm
Mobile Phase: ACN/Water 58:42
Flow Rate: 1.0ml/min
Detector: UV at 254nm

Efficiency



Applications at low pH

Bipyridylium Herbicides



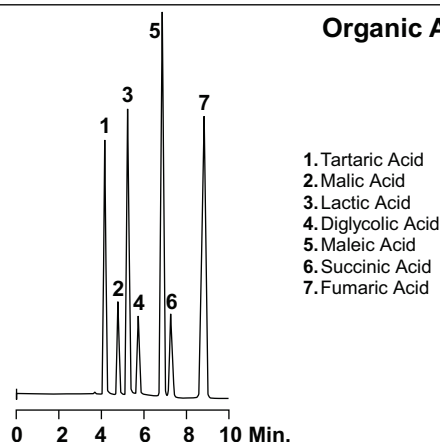
1. Diquat
2. Paraquat

Column: Exsil Plus Si 100Å, 3µm, 30mmx4.6mm
Mobile Phase: 0.01M Tetramethylammonium Hydroxide and 0.15M Ammonium Sulfate in Water, pH3.0 with 5M Sulfuric Acid
Flow Rate: 0.5mL/min
Detector: UV at 310nm until 3minutes
 UV at 260nm after 3minutes

Low pH? No Problem!

- perfect for Acids

Organic Acid Mix

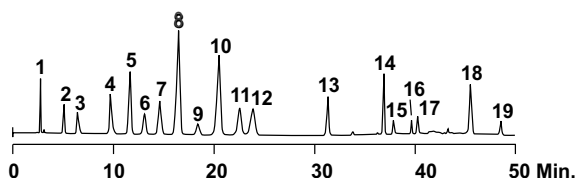


1. Tartaric Acid
2. Malic Acid
3. Lactic Acid
4. Diglycolic Acid
5. Maleic Acid
6. Succinic Acid
7. Fumaric Acid

Column: Exsil Plus C8 EPS, 5µm, 150x4.6mm
Mobile Phase: 0.025M KH₂PO₄ ,pH 2.5: Methanol(97:3)
Flow Rate: 0.7ml/min
Detector: UV at 220nm

Choose Exsil Plus for Water Pollutants

Sempolar & Highly Hydrophilic Waste Water Contaminants



1. 4-Amino-5-hydroxy-2,7-naphthalene-disulfonic Acid
2. Hydroquinone
3. Benzylamine
4. 3'-Aminoacetophenone
5. Phenol
6. 4-Hydroxyphenylacetic Acid
7. 1-Naphthalene Sulfonic Acid
8. 2,4-Dihydroxybenzoic Acid
9. 1-Naphthalene Sulfonic Acid Degradant
10. 4-Hydroxy-3-methoxybenzoic Acid
11. Phenylacetic Acid
12. m-Cresol
13. 4-Hydroxycinnamic Acid
14. trans -Cinnamaldehyde
15. trans -Cinnamaldehyde Degradant
16. trans -Cinnamaldehyde Degradant
17. 2-Naphthalenethiol Degradant
18. 2-Naphthalenethiol
19. 2-Naphthalenethiol Degradant

Column: Exsil Plus EPS C18, 5µm, 250x4.6mm
Mobile Phase: A: 0.03M Monosodium Phosphate, pH2.5
 B: Acetonitrile:Methanol:Water(40:50:10)
Gradien

Time:	0	3	13	20	25	30	40	45	55
%B:	5	5	10	10	20	40	75	80	80

Flow Rate: 1.0mL/min
Detector: UV at 210nm

Carbamate Pesticides from Water

Procedure using GracePure™ C18-Fast, 500mg:

Sample Treatment – Spike 500mL tap water with 125µL carbamate solut on for final concentration of 25ppb.

Conditioning–Rinse with 3mL acetonitrile:water (80:20) followed by 3mL water.
 Dry with vacuum.

Sample Application – Apply 500µL sample.

Wash – 2 x 3mL water.

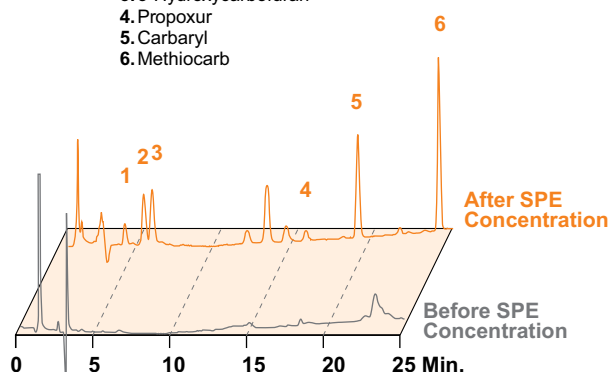
Elution – Elute with 4 x 1mL acetonitrile:water (80:20)

Column: Exsil Plus EPS C18, 5µm, 250x4.6mm
Mobile Phase: A: DI water B: Acetonitrile
Gradien

Time:	0	5	20	25	30
%B:	25	25	50	50	25

Flow Rate: 1mL/min
Detector: UV at 210nm

1. Aldicarb sulfoxide
2. Methomyl
3. 3-Hydroxycarbofuran
4. Propoxur
5. Carbaryl
6. Methiocarb

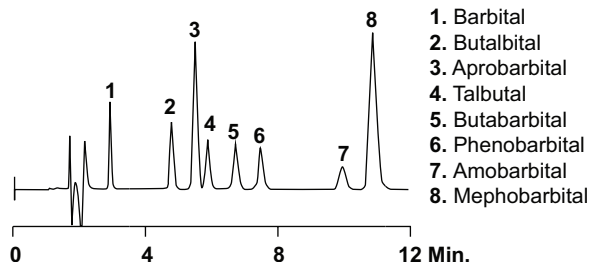


Special Applications on Exsil Plus EPS

For Challenging Separations

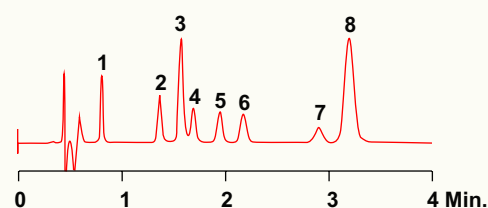
- 100% Water suitable
- Better peak shapes with polar analytes
- Higher Retention on polar compounds
- Excellent stability and reproducibility
- Suitable for ELSD
- Suitable for MS
- Very high mechanical strength
- pH Stable from 1-10

Sleeping Drugs (Barbiturates)



Column: Exsil Plus EPS 100Å C18, 5µm, 150 x 4.6mm
Mobile Phase: 0.010M Sodium Acetate, pH4.0 Acetonitrile (75:25)
Flowrate: 1.0ml/min
Detector: UV at 230nm

**Run Time
Reduced
by 70%**

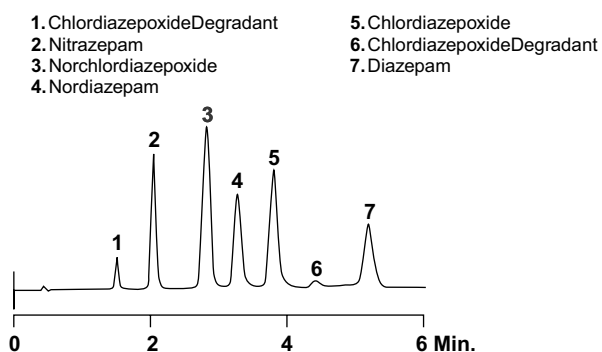


Rocket™ Column

Column: Exsil Plus EPS C18, 3µm, 53 x 7mm
Mobile Phase: 0.010M Sodium Acetate, pH4.0 Acetonitrile (75:25)
Flowrate: 3.0ml/min
Detector: UV at 230nm

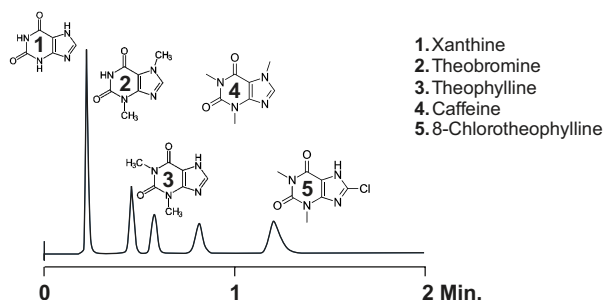
From UHPLC to conventional LC

Benzodiazepines and Metabolites



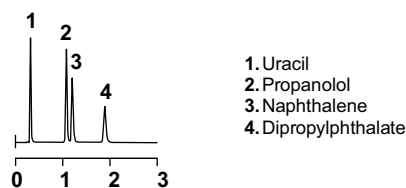
Column: Exsil Plus EPS C18, 3µm, 53x7mm Rocket™ (PartNo. 50573)
Mobile Phase: 0.05M Ammonium Acetate, pH5.5: Acetonitrile (65:35)
Flow Rate: 3.0ml/min
Detector: UV at 254nm

Stimulans



Column: Exsil Plus EPS C18, 3µm, 7x33mm Rocket™
Mobile Phase: 0.010M Sodium Acetate, pH4.0: Methanol (70:30)
Flow Rate: 5.0 ml/min
Detector: UV at 254nm

Propranolol

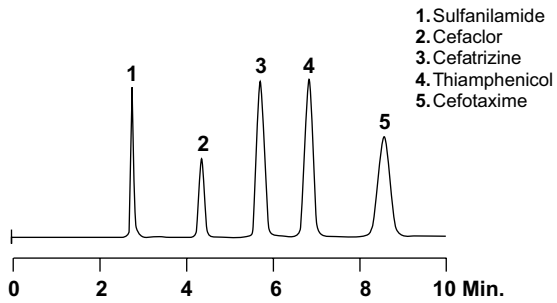


Column: Exsil Plus EPS C18, 1.5µm, 50x2.0mm
Mobile Phase: 20mM Potassium Phosphate, pH2.5: Methanol (40:60)
Flow Rate: 0.5ml/min
Detector: UV at 280nm
Temperature: Ambient

**Silica Phases for High Throughput
with Conventional LC**

Special Applications for Exsil Plus EPS

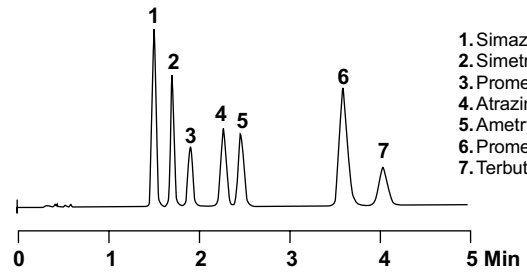
Antibiotics Antibacterials



1. Sulfanilamide
2. Cefaclor
3. Cefatrizine
4. Thiamphenicol
5. Cefotaxime

Column: Exsil Plus EPS C18, 5µm, 150x4.6mm
Mobile Phase: 0.025M KH₂PO₄, pH3.0:Acetonitrile(90:10)
Flow Rate: 1.0 mL/min
Detector: UV at 230nm

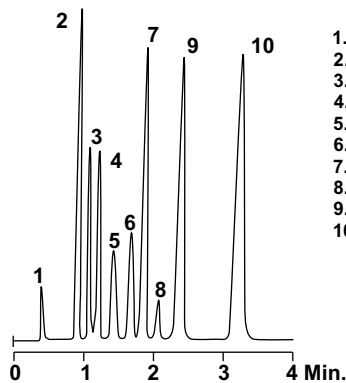
Triazine Herbicides



1. Simazine
2. Simetryn
3. Prometon
4. Atrazine
5. Ametryn
6. Prometryn
7. Terbutryn

Column: Exsil Plus EPS C18, 1.5µm, 33x7mm
Mobile Phase: 0.025M KH₂PO₄, pH3.0:Acetonitrile(65:35)
Flow Rate: 2.0ml/min
Detector: UV at 254nm

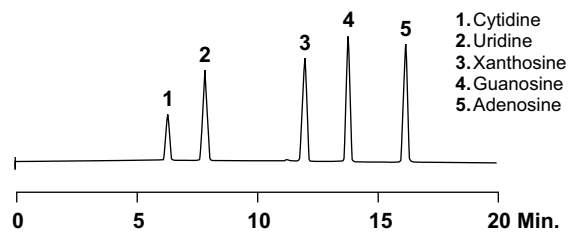
Monoaromatics



1. Uracil
2. Benzamide
3. Benzyl Alcohol
4. Phenol
5. Methylbenzoate
6. Acetophenone
7. N,N-Diethyl-m-toluamide
8. Toluene
9. Benzophenone
10. Biphenyl

Column: Exsil Plus EPS C18, 3µm, 53x7mm Rocket™
Mobile Phase: 0.05M KH₂PO₄, pH3.0:Methanol(50:50)
Flow Rate: 2.3ml/min
Detector: UV at 254nm

Nucleosides



1. Cytidine
2. Uridine
3. Xanthosine
4. Guanosine
5. Adenosine

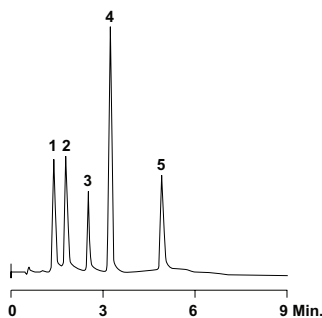
Column: Exsil Plus EPS C18, 5µm, 250x4.6mm
Mobile Phase: A: 0.03M KH₂PO₄, pH3.2 B: Acetonitrile
Gradient:

Time:	0	2	20
%B:	5	5	30

Flow Rate: 0.7ml/min
Detector: UV at 260nm

Special Applications for Exsil Plus EPS with ELSD

Peptides



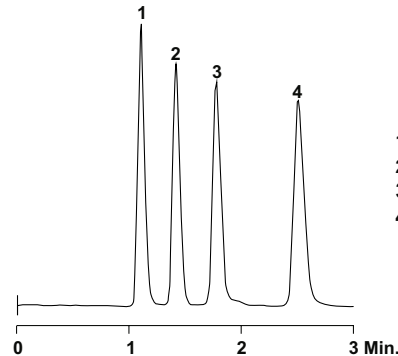
1. (Arg-8)-Vasotocin
2. (Lys-8)-Vasopressin
3. Oxytocin
4. Leucine Enkephalin
5. Angiotensin 1

Column: Exsil Plus EPS C18, 3µm, 53x7mm Rocket
Mobile Phase: A: 0.15%TFA in Water
 B: 0.13%TFA in 95%Acetonitrile:5%Water
Gradient:

Time:	0	10
%B:	20	50

Flowrate: 3.0ml/min
Detector: Alltech ELSD

Anticonvulsants

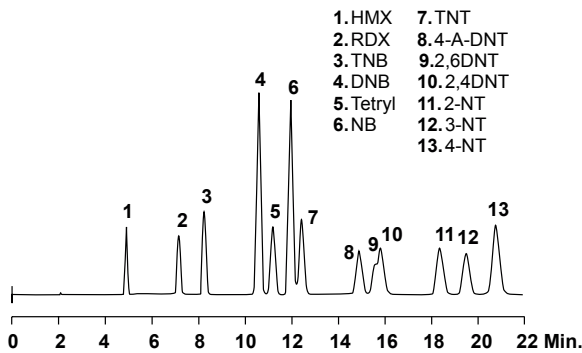


1. Ethotoin
2. Mephentyoin
3. 5,5-Diphenylhydantoin
4. Carbamazepine

Column: Exsil Plus EPS, C18, 3µm, 53 x 7mm Rocket™ Column
Mobile Phase: 0.025M Ammonium Acetate, pH 5.5: Acetonitrile (70:30)
Flowrate: 3.0ml/min
Detector: Alltech ELSD

Choose Exsil Plus for difficult Applications

Nitroaromatic and Nitroamine Explosives



Column: Exsil Plus C18, 5µm, 250x4.6mm
(PartNo. 5136793.s2546)

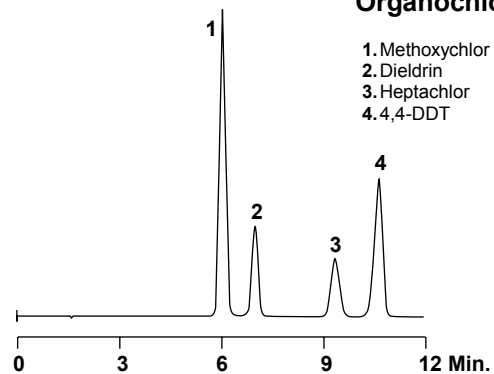
Mobile Phase: Water:Methanol(50:50)

Flow Rate: 0.7mL/min

Detector: UV at 254nm

Pesticides

Organochlorines



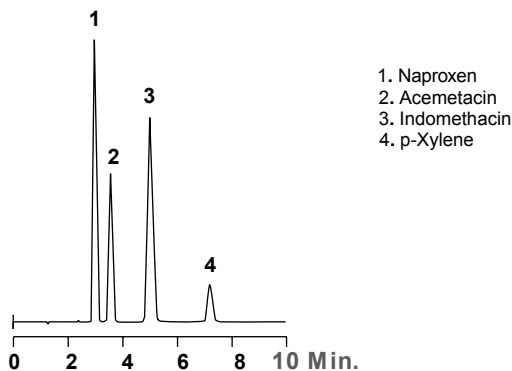
Column: Exsil Plus C18, 5µm, 150x4.6mm
(PartNo. 5136793.s1546)

Mobile Phase: 0.025M KH₂PO₄ ,pH7.0:Methanol(25:75)

Flow Rate: 1.0mL/min

Detector: UV at 220nm

Anti-Inflammatories



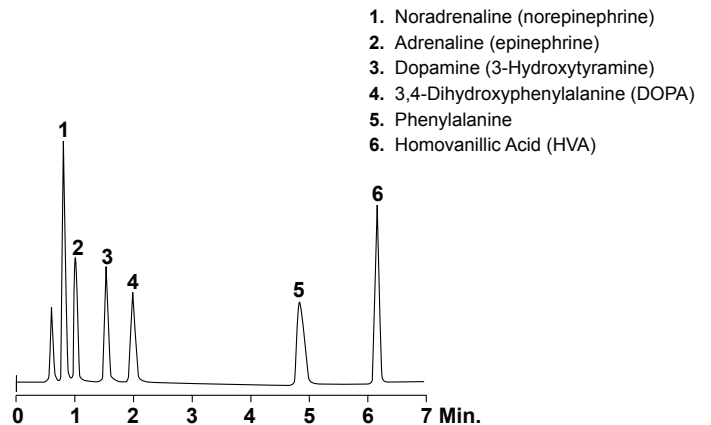
Column: Exsil Plus C18, 5µm, 150x4.6mm

Mobile Phase: 0.02M KH₂PO₄:Methanol:Acetonitrile:
pH4.5(40:50:10)

Flow Rate: 1.0ml/min

Detector: UVat254nm

Catecholamines



Column: Exsil Plus C18, 3µm,
53 x 7mm Rocket™ Column

Mobile Phase: A: 0.15% TFA

B: Acetonitrile

Gradient:

Time:	0	3	12	15
%B:	3	3	65	65

Flowrate: 2.5mL/min

Detector: ELSD

Drift Tube Temp: 40°C

Nitrogen Flowrate: 1.75SLPM

packed by

Dr. Maisch GmbH

Any Column, Any Size, Any Media

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support@freshbioscience.com

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FRESH BIOSCIENCE (SHANGHAI) CO., LTD.

Bldg 3-501, No.138 Xinjunhuan Rd, Minhang Dist, Shanghai

Tel: +86 21 3388 2916 Fax: +86 21 3388 0027

E-mail: info@freshbioscience.com

Web: www.freshbioscience.com

