

Dr. Maisch
Any Column, Any Size, Any Media



ReproSil pHoenix
Extreme pH-stable

MADE BY DR. MAISCH

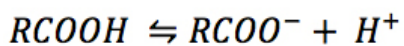
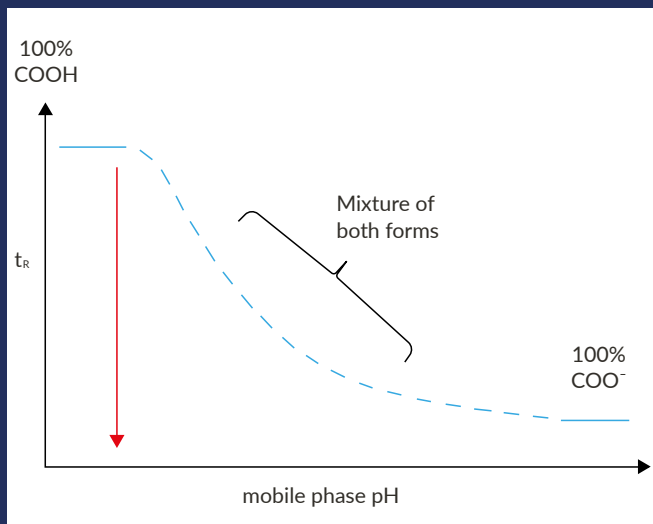
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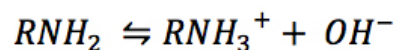
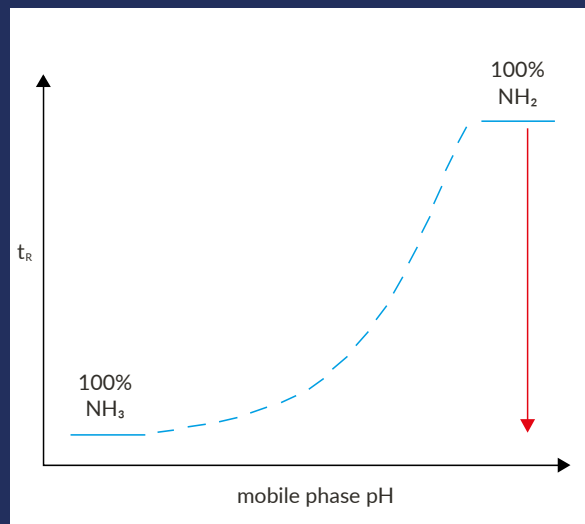
ReproSil pHoenix
MADE BY DR. MAISCH

From one of the biggest **H**igh-**P**erformance
Liquid **C**hromatography (HPLC) - Column
Manufacturer in Europe.

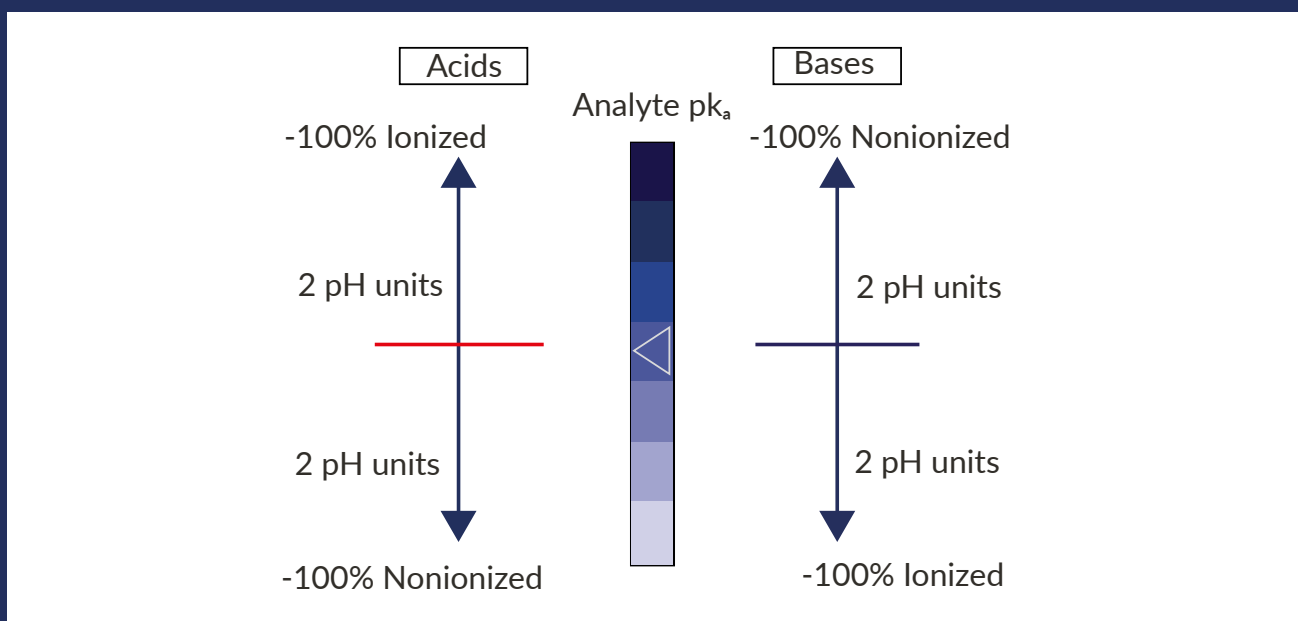
WHY IS THERE A NEED TO DO CHROMATOGRAPHY AT EXTREME pH?



Acids are best retained with optimal peak shape at low pH



Bases are best retained with optimal peak shape at high pH



EFFECT OF EXTREME pH ON SILICA BASED MEDIA

High pH:

Hydrolysis of silica gel backbone

- **Severe peak distortion**
- **loss of efficiency**

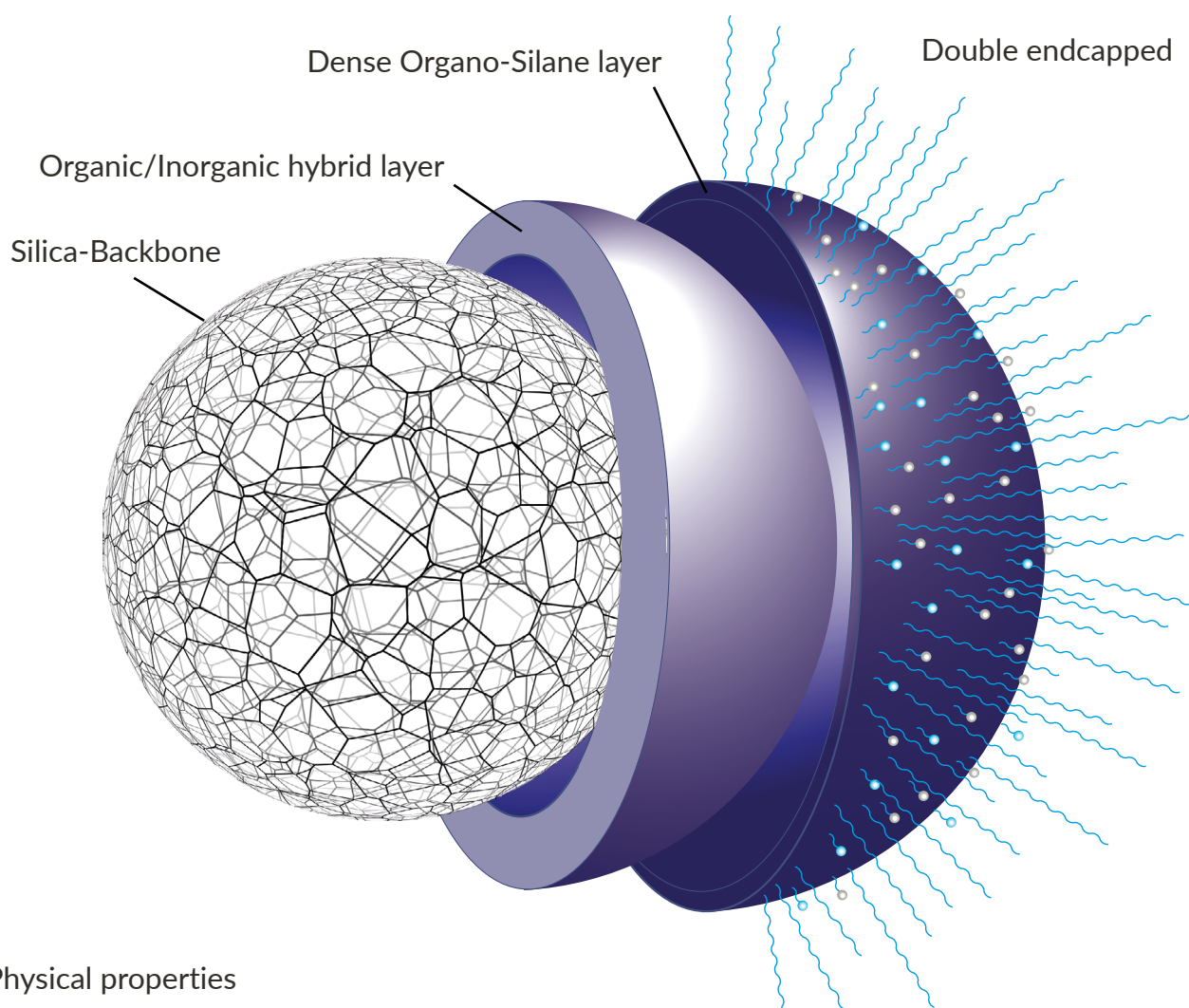
Low pH:

Hydrolysis of bonded phase and endcapping

- **Loss of retention time**
- **Peak tailing for basic compounds**

INCREASING pH STABILITY

NEW HYBRID DOUBLE SHIELDED SILICA



Physical properties

Pore size:	100 Å
Particle size:	1.9 µm, 3 µm, 5 µm, 7 µm, 10 µm
Surface area:	470 m ² /g
Modification:	C18
Carbon content:	22%
Endcapping:	yes

LONG TERM pH STABILITY

Purging conditions:
NaOH(aq) pH 12

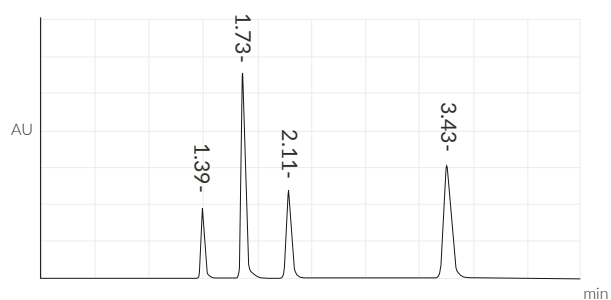
Test conditions:

Mobile phase: MeOH/H₂O 85/15

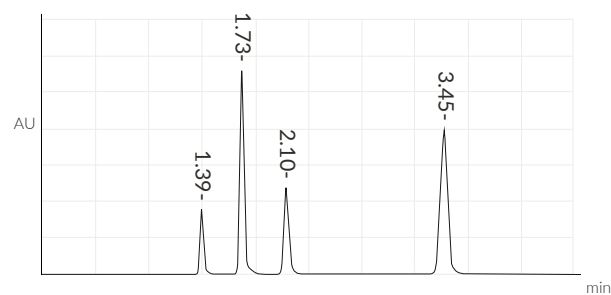
Flow rate: 1 ml/min

Detector: UV @ 254 nm

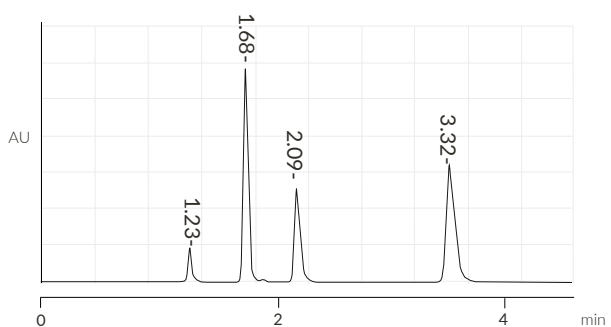
Name:	Conc. mg / mL
1 Uracil	0.015
2 Phenol	0.700
3 N,N-Diethyl-M-Toluamide	0.600
4 Toluene	4.000



0 hours



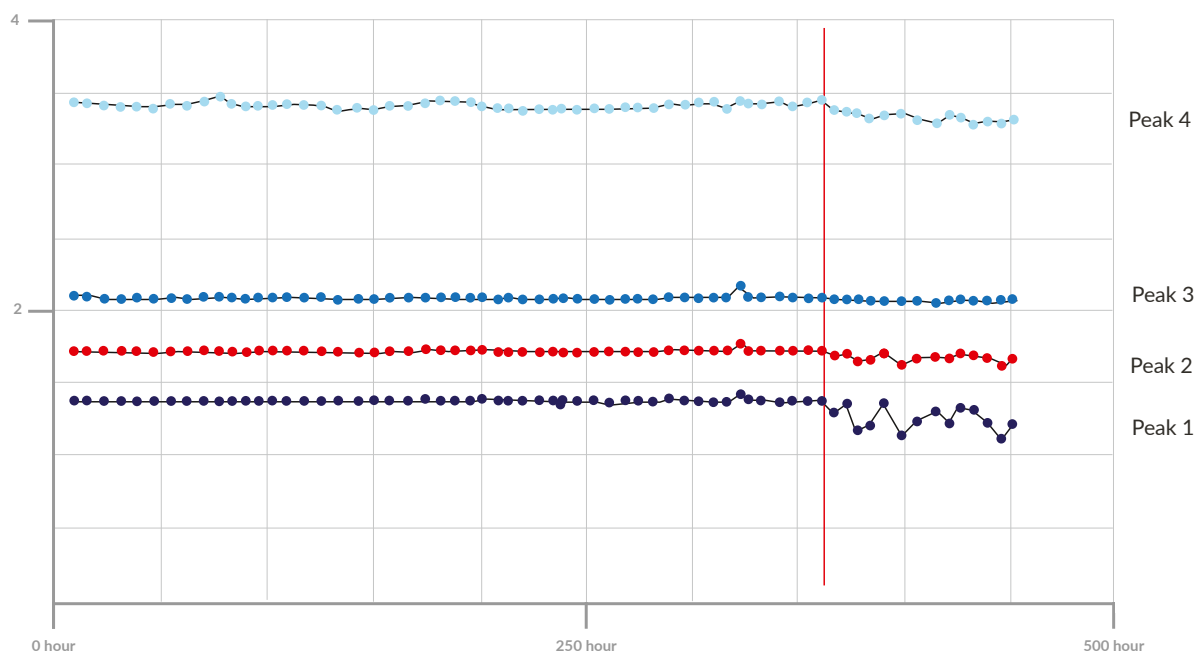
210 hours



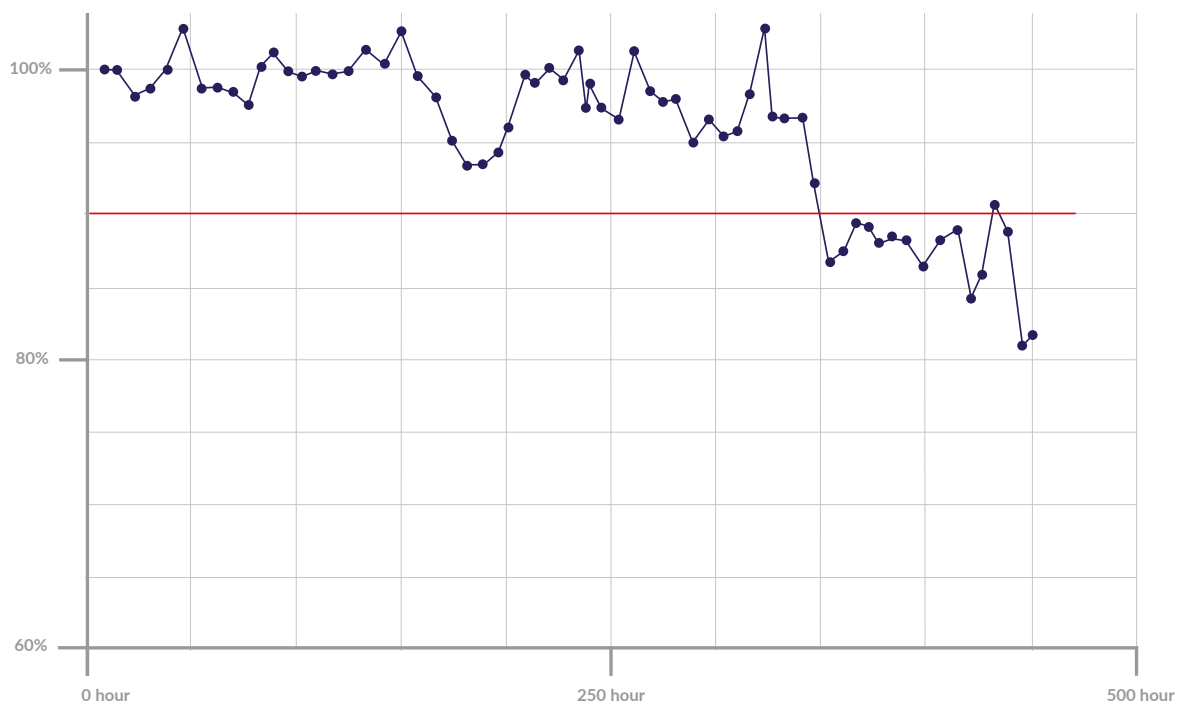
400 hours

LONG TERM pH STABILITY

Peak retention vs. purging time with NaOH(aq) pH 12



Th. plates (Peak 4) % vs. purging time

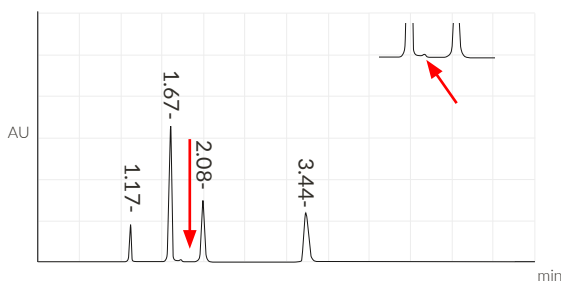


SELECTIVITY COMPARISON BASIC CONDITIONS pH 12

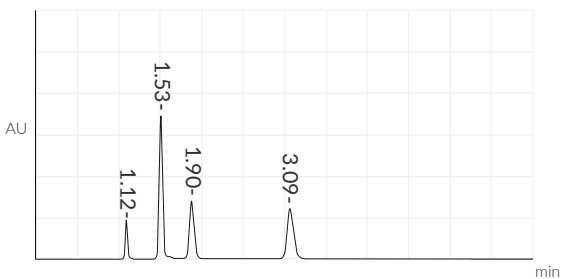
Resolution of „impurity“ on ReproSil pHoenix

Mobile phase: MeOH/NH₃-resolution (pH 12) 85/15
Flow rate: 1 ml/min
Detector: UV @ 254 nm

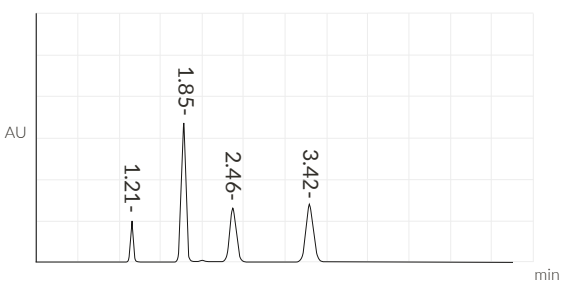
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2 Phenol	0.700
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ReproSil pHoenix

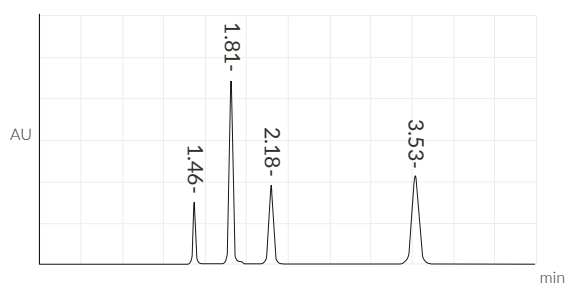


Kromasil Eternity

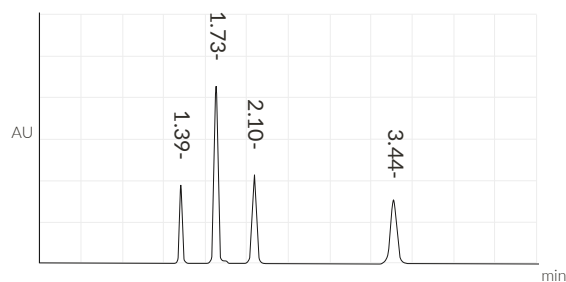


YMC Triart

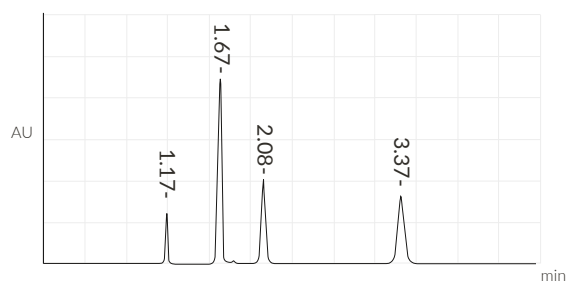
SELECTIVITY COMPARISON AT DIFFERENT pH



ReproSil pHoenix, pH 7



ReproSil pHoenix, pH 3

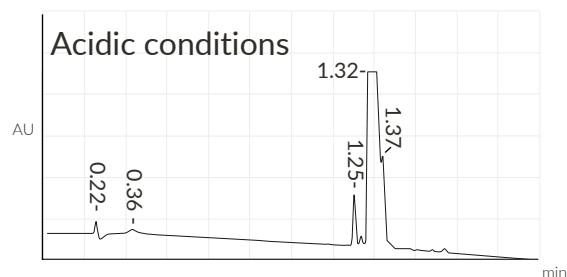


ReproSil pHoenix, pH 12

SELECTIVITY AND PEAK SHAPE UNDER BASIC AND ACIDIC ELUENT CONDITIONS

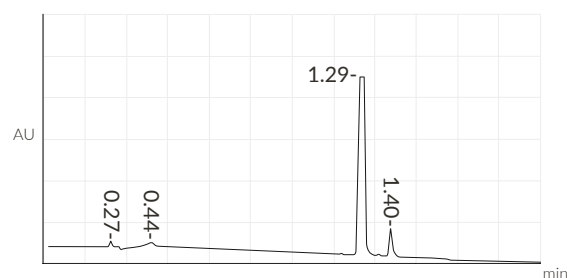
Observe superior selectivity / resolution of
ReproSil pHoenix vs. Waters Acquity

Data courtesy of Nuvisan ICB GmbH



Waters Acquity

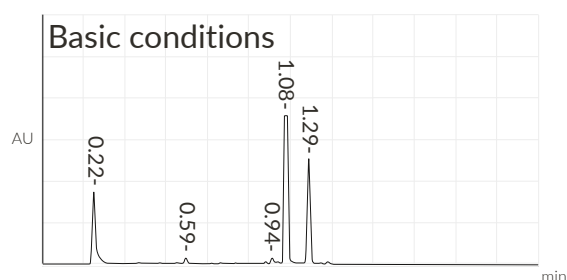
Column: Acquity UPLC BEH C18 1.7 μ m, 50x2.1mm;
eluent A: water + 0.1 vol% formic acid;
eluent B: acetonitrile;
gradient: 0-1.6 min 1-99 % B, 1.6-2.0 min 99 % B



ReproSil pHoenix

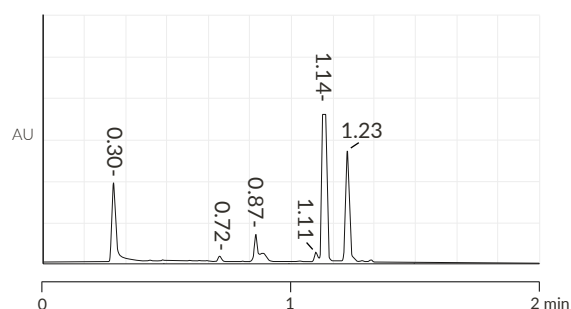
Column: ReproSil pHoenix C18 3 μ m, 75 x 2.1 mm;
eluent A: water + 0.1 vol% formic acid;
eluent B: acetonitrile;
gradient: 0-1.6 min 1-99 % B, 1.4-2.0 min 99 % B

Observe superior peak shape of
ReproSil pHoenix vs. Waters Acquity



Waters Acquity

Column: Acquity UPLC BEH C18 1.7 μ m, 50x2.1mm;
eluent A: water + 0.2 vol% aqueous ammonia (32%);
eluent B: acetonitrile;
gradient: 0-1.6 min 1-99 % B, 1.6-2.0 min 99 % B



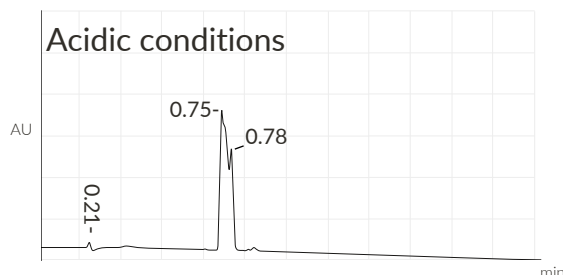
ReproSil pHoenix

Column: ReproSil pHoenix C18 3 μ m, 75 x 2.1 mm;
eluent A: water + 0.2 vol% aqueous ammonia (32%);
eluent B: acetonitrile;
gradient: 0-1.4 min 1-99 % B, 1.4-2.0 min 99 % B

SELECTIVITY AND PEAK SHAPE UNDER BASIC AND ACIDIC ELUENT CONDITIONS

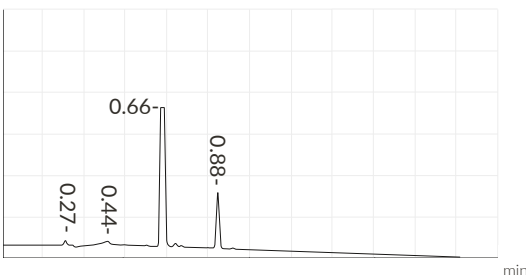
Observe superior selectivity / resolution and peak shape of ReproSil pHoenix vs. Waters Acquity

Acidic conditions



Waters Acquity

Column: Acquity UPLC BEH C18 1.7 μ m, 50x2.1mm;
eluent A: water + 0.1 vol% formic acid;
eluent B: acetonitrile;
gradient: 0-1.6 min 1-99 % B, 1.6-2.0 min 99 % B

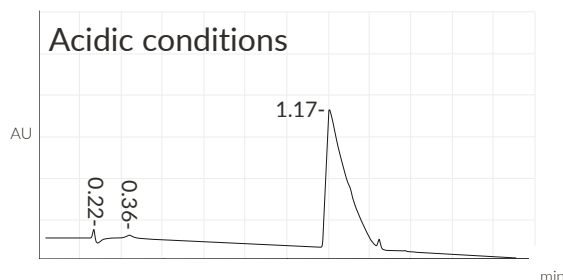


ReproSil pHoenix

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gradient: 0-1.6 min 1-99% B, 1.4-2.0 min 99% B

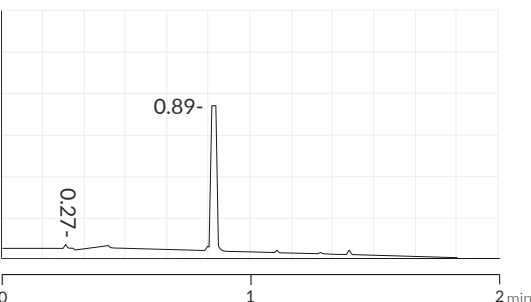
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ReproSil pHoenix

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gradient: 0-1.6 min 1-99 % B, 1.4-2.0 min 99 % B

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