Dr. Maisch

Any Column, Any Size, Any Media

ReproSil pHoenix

Extreme pH-stable

MADE BY DR. MAISCH

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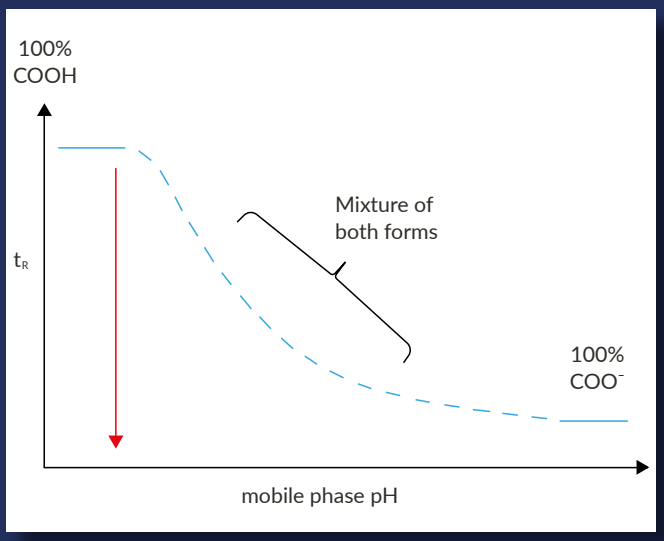
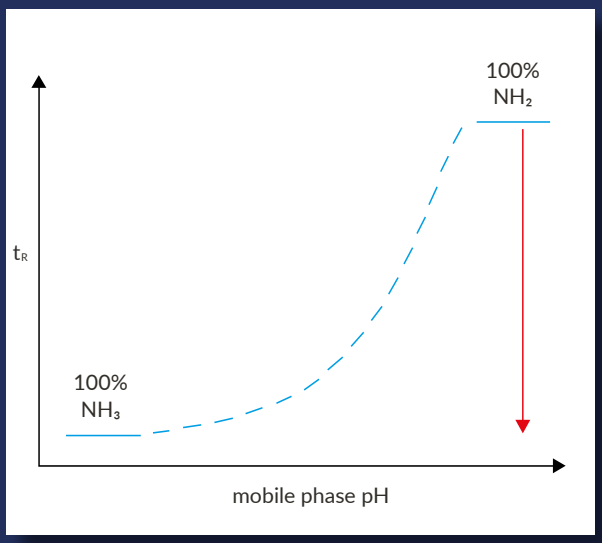
ReproSil pHoenix
MADE BY DR. MAISCH

From one of the biggest
High-**P**erformance **L**iquid **C**hromatography (HPLC) and
Ultra **H**igh-**P**erformance **L**iquid **C**hromatography (UHPLC)
Column Manufacturers in Europe.

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



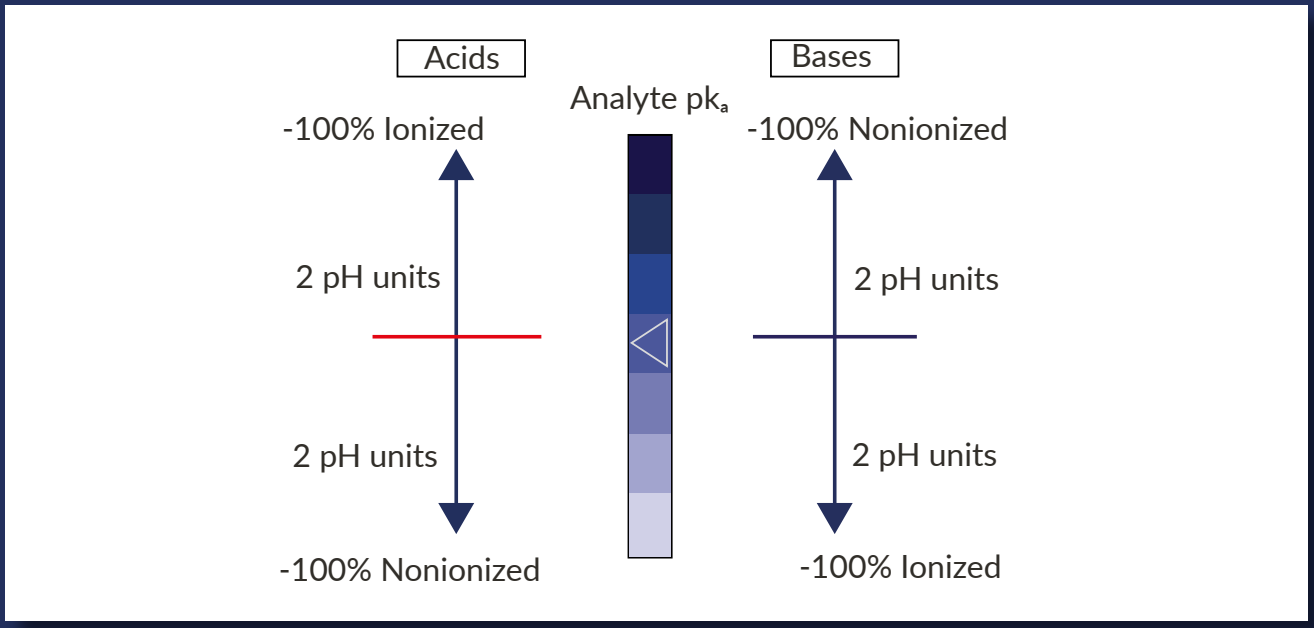


$$RCOOH \leftrightharpoons RCOO^- + H^+$$

Acids are best retained with optimal peak shape at low pH

$$RNH_2 \leftrightharpoons RNH_3^+ + OH^-$$

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

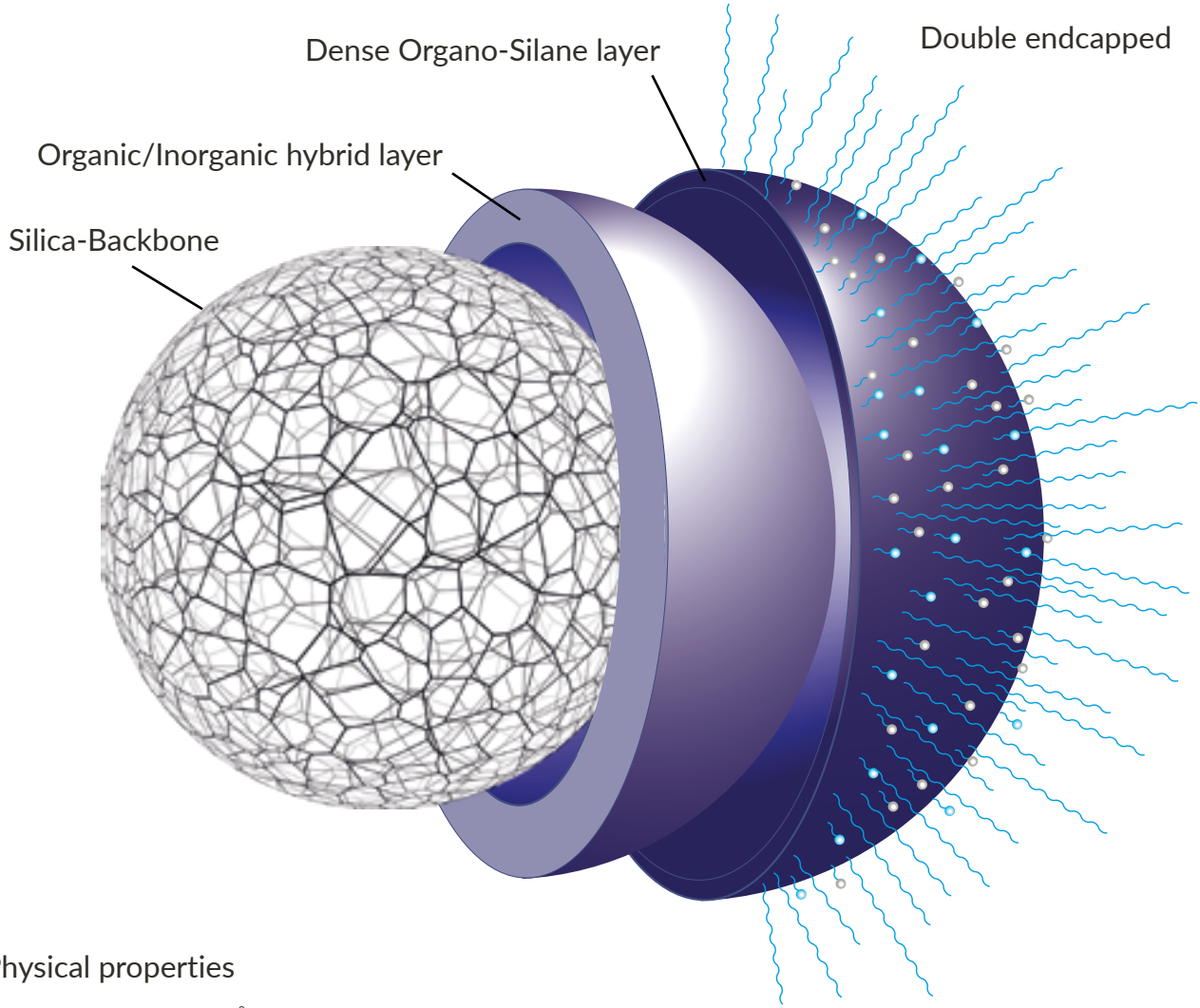
Low pH:

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, 7µm, 10 µm
Surface area:	470 m²/g
Modification:	C18
Carbon content:	22%
Endcapping:	yes

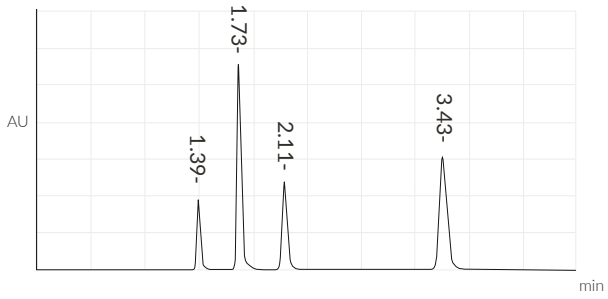
LONG TERM pH STABILITY

Purging conditions:
NaOH(aq) pH 12

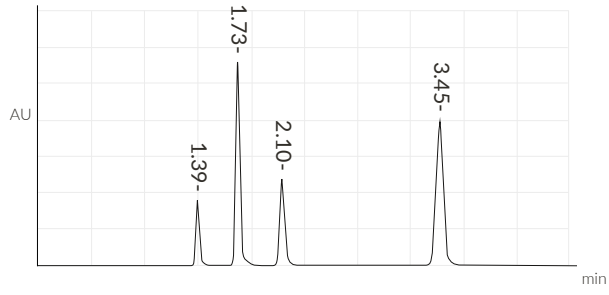
Test conditions:

Mobile phase: MeOH/H_2O 85/15
Flow rate: 1 ml/min
Detector: UV @ 254 nm

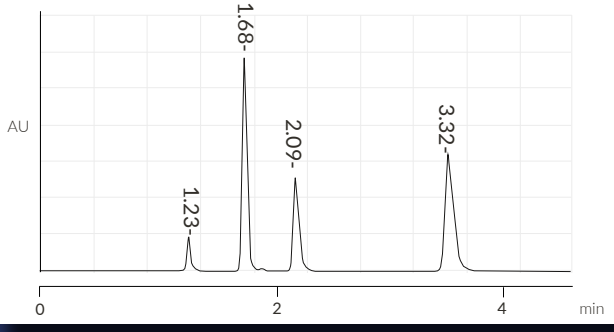
Name:	Conc. mg/mL
1 Uracil	0.015
2 Phenol	0.700
3 N,N-Diethyl-M-Toluamide	0.600
4 Toluene	4.000



0 hours



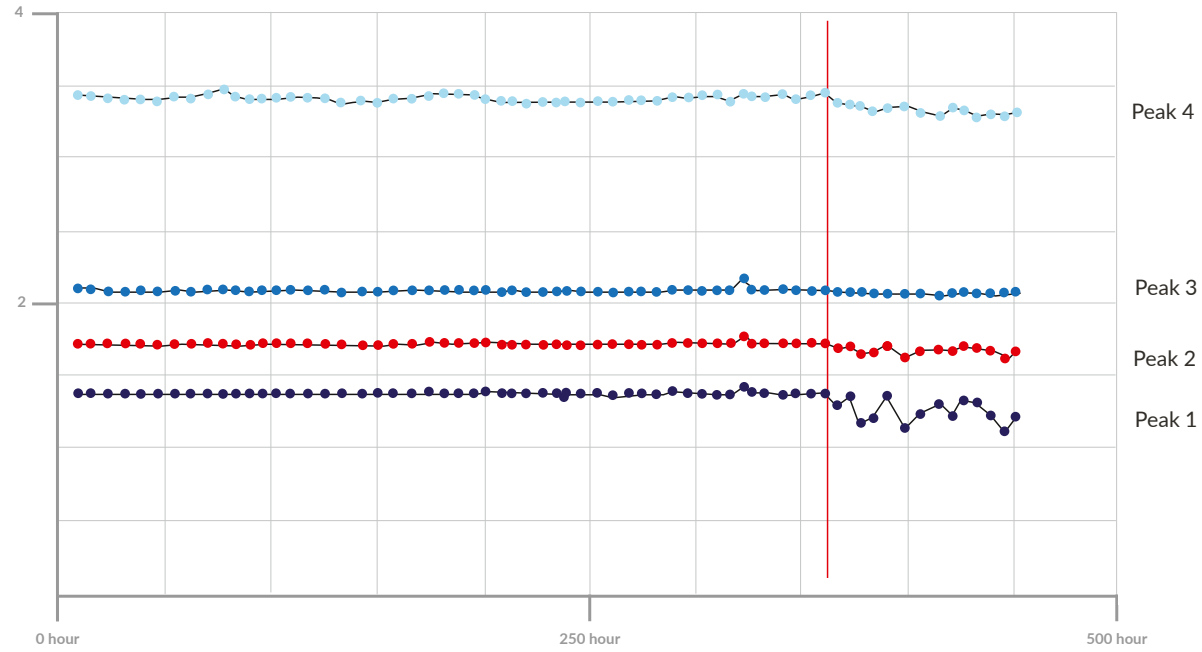
210 hours



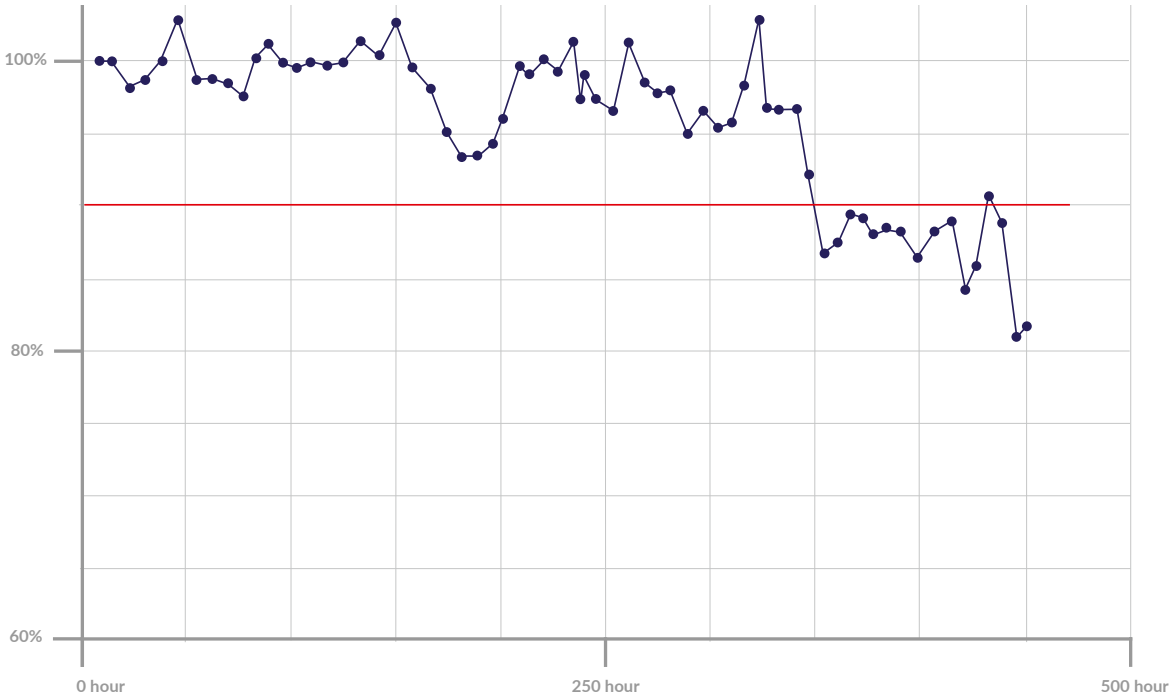
400 hours

LONG TERM pH STABILITY

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



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

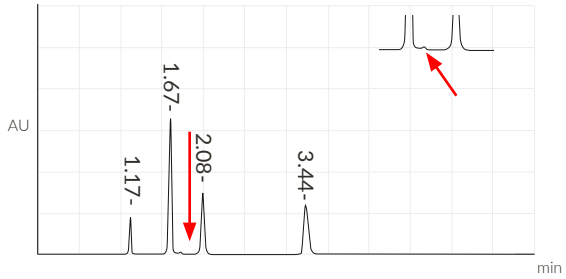


SELECTIVITY COMPARISON BASIC CONDITIONS pH 12

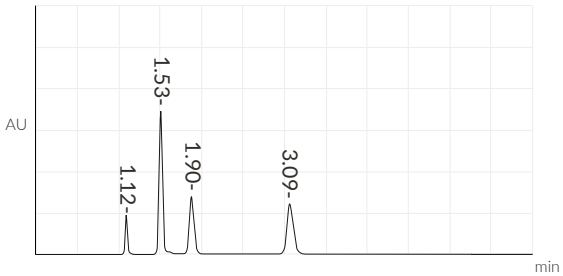
Resolution of „impurity“ on ReproSil pHoenix

Mobile phase: MeOH/NH_3-resolution (pH 12) 85/15
Flow rate: 1 ml/min
Detector: UV@254 nm

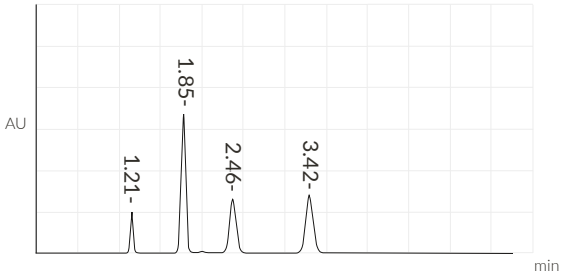
Name:	Conc. mg/mL
1 Uracil	0.015
2 Phenol	0.700
3 N,N-Diethyl-M-Toluamide	0.600
4 Toluene	4.000



ReproSil pHoenix

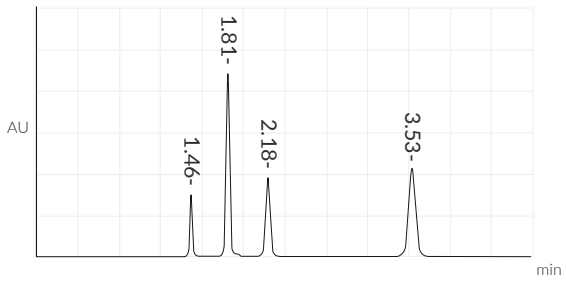


Kromasil Eternity

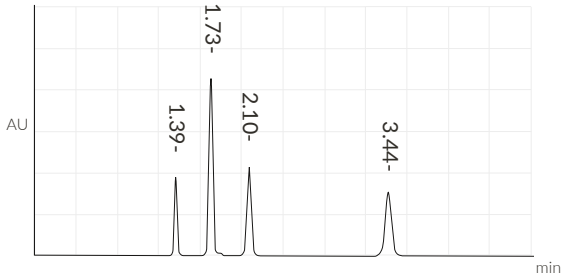


YMC Triart

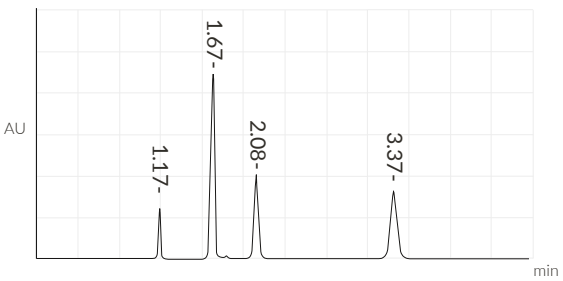
SELECTIVITY COMPARISON AT DIFFERENT pH



ReproSil pHoenix, pH 7



ReproSil pHoenix, pH 3

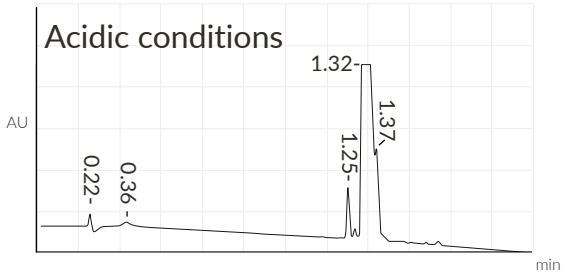


ReproSil pHoenix, pH 12

SELECTIVITY AND PEAK SHAPE UNDER BASIC AND ACIDIC ELUENT CONDITIONS

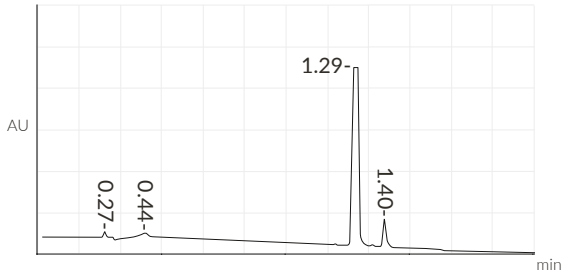
Observe superior selectivity / resolution of ReproSil pHoenix vs. Waters Acquity

Data courtesy of Nuvisan ICB GmbH



Waters Acquity

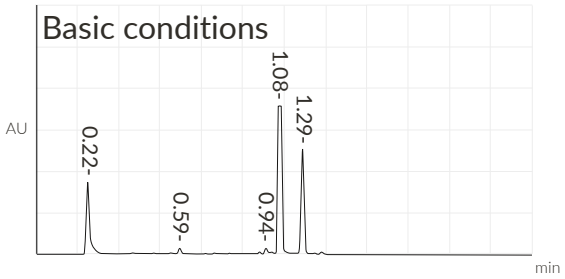
Column: Acquity UPLC BEH C18 1.7 µm, 50x2.1 mm
eluent A: water + 0.1 vol% formic acid
eluent B: acetonitrile
gradient: 0-1.6 min 1-99 % B, 1.6-2.0 min 99 % B



ReproSil pHoenix

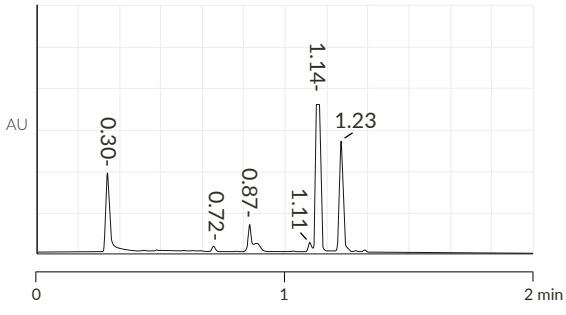
Column: ReproSil pHoenix C18 3 µm, 75 x 2.1 mm
eluent A: water + 0.1 vol% formic acid
eluent B: acetonitrile
gradient: 0-1.6 min 1-99 % B, 1.4-2.0 min 99 % B

Observe superior peak shape of ReproSil pHoenix vs. Waters Acquity



Waters Acquity

Column: Acquity UPLC BEH C18 1.7 µm, 50x2.1 mm
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

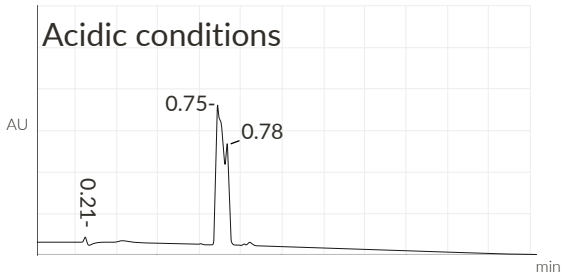


ReproSil pHoenix

Column: ReproSil pHoenix C18 3 µm, 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



Waters Acquity

Column: Acquity UPLC BEH C18 1.7 µm, 50x2.1 mm
eluent A: water + 0.1 vol% formic acid
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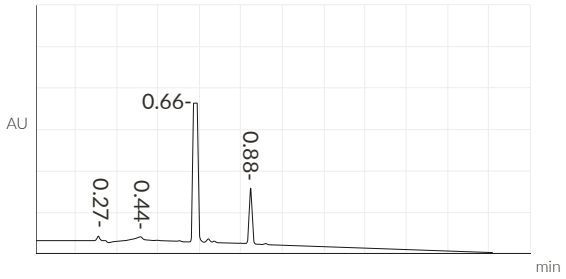
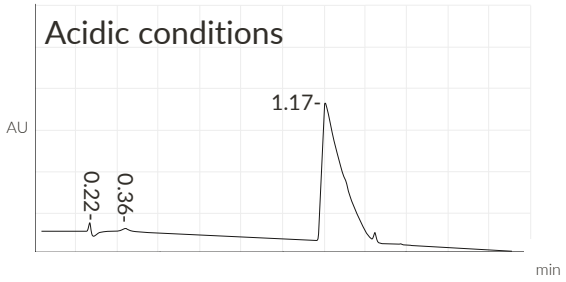
gradient: 0-1.6 min 1-99 % B, 1.6-2.0 min99 % B



ReproSil pHoenix

Column: ReproSil pHoenix C18 3 µm, 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 min99% B

Observe superior peak shape of ReproSil pHoenix vs. Waters Acquity



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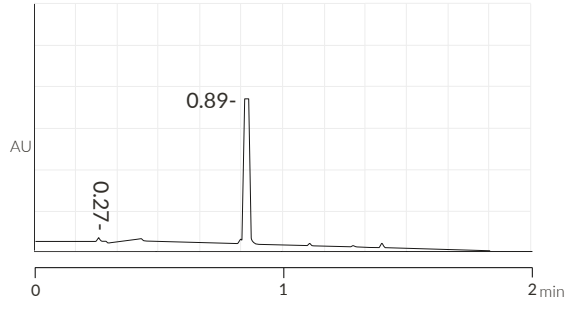

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eluent B: acetonitril;
gradient: 0-1.6 min 1-99 % B, 1.4-2.0 min 99 % B

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