HPLC column

ChromaNik Technologies Inc.

SunBridge

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Nacalai USA

Innovations for Life Sciences.

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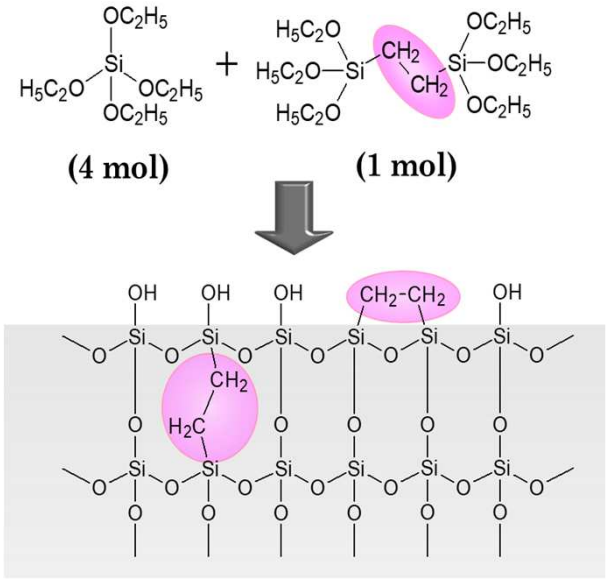
ULTRA HYBRID C18

SunBridge C18

Ethylene cross-linked silica gel



Synthesis of hybrid silica gel

Particle size: 5 µm, Pore volume: 0.8 mL/g,
Specific surface area: 190 m²/g, Pore diameter: 15 nm

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Bonding with Trifunctional C18

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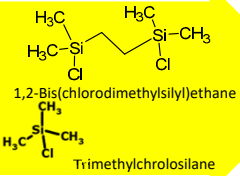
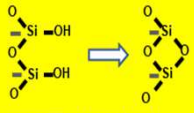
Double End-capping

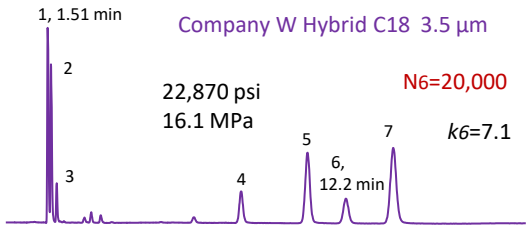


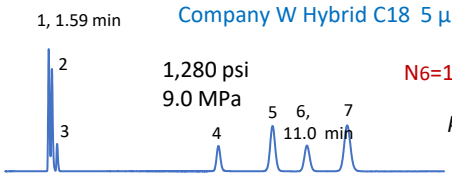
Elevated temperature end-capping

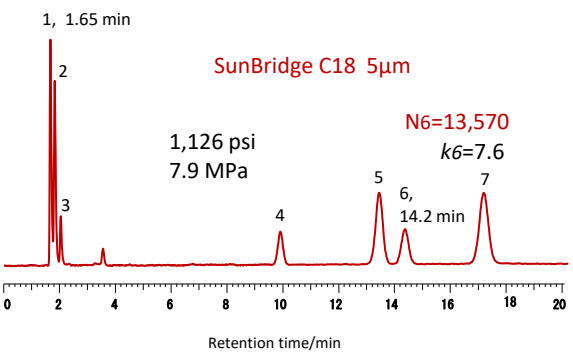


Hybrid silica gel + special end-capping

Evaluation of hydrogen bonding, hydrophobicity and steric selectivity

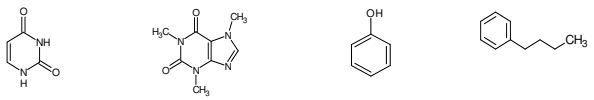




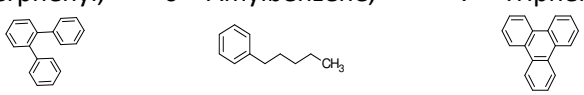


As a comparison, Hybrid C18 manufactured by W Company, which is ethylene crosslinked silica gel C18 in which an ethylene chain is incorporated into the silica skeleton, was used.

Column: Company W Hybrid C18 3.5 µm, 5 µm,
SunBridge C18 5 µm,
Column demensions: 150 x 4.6 mm
Mobile phase: CH_3OH/H_2O=75/25
Flow rate: 1.0 mL/min
Temperature: 40 ºC
Sample: 1 = Uracil, 2 = Caffeine, 3 = Phenol, 4 = Butylbenzene,

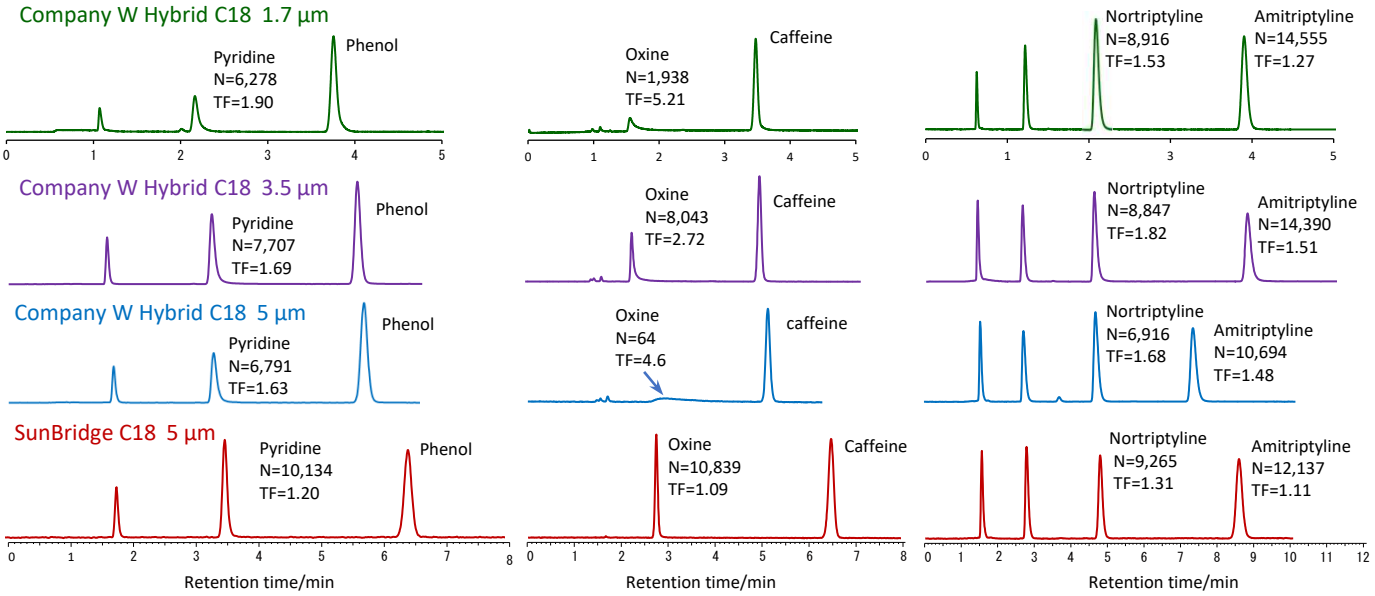


5 = o-Terphenyl, 6 = Amylbenzene, 7 = Triphenylene



	Hydrogen bonding α(Caffeine/Phenol)	Hydrophobicity α(Amylbenzene/Butylbenzene)	Steric selectivity α(Triphenylene/o-Terphenyl)	Specific surface aera (m^2/g)	Carbon loading (%)
Company W Hybrid C18 3.5 µm	0.38	1.54	1.33	185	17.4%
Company W Hybrid C18 5 µm	0.39	1.52	1.33	188	18.0%
SunBridge C18 5µm	0.42	1.54	1.32	190	16.1%

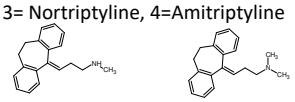
Comparison of peaks for pyridine, oxine, and nortriptyline



Column dimension:
150 x 4.6 mm for 3.5 and 5 µm
100 x 2.1 mm for 1.7 µm
Mobile phase: CH_3OH/H_2O=30/70
Flow rate: 1.0 mL/min for 3.5 and 5 µm
0.2 mL/min for 1.7 µm
Temperature: 40 ºC
Detection: UV@250 nm
Sample: 1 = Uracil
2 = Pyridine
3 = Phenol

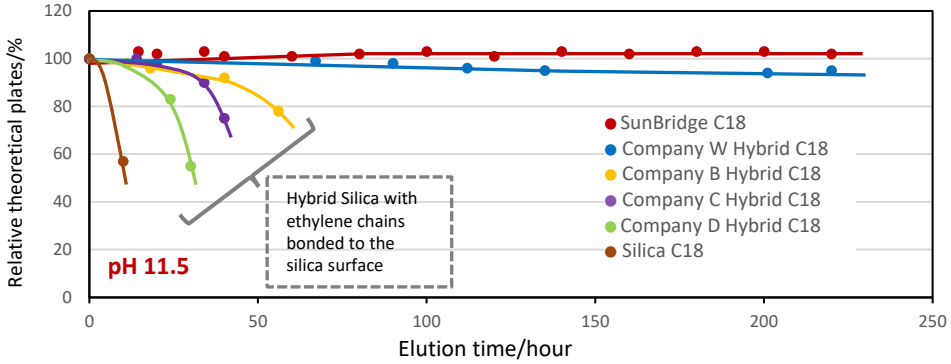
Column dimension:
150 x 4.6 mm for 3.5 and 5 µm
100 x 2.1 mm for 1.7 µm
Mobile phase: CH_3CN/20mM H_3PO_4=10/90
Flow rate: 1.0 mL/min for 3.5 and 5 µm
0.2 mL/min for 1.7 µm
Temperature: 40 ºC
Detection: UV@250 nm
Sample: 1 = 8-Quinolinol (Oxine)
2 = Caffeine

Column dimension:
150 x 4.6 mm for 3.5 and 5 µm
100 x 2.1 mm for 1.7 µm
Mobile phase: Acetonitrile/10mM ammonium acetate pH6.8=40/60
Flow rate: 1.0 mL/min for 3.5 and 5 µm
0.3 mL/min for 1.7 µm
Temperature: 40 ºC
Detection: UV@250 nm
Sample: 1=Uracil, 2=Propranolol,
3= Nortriptyline, 4=Amitriptyline



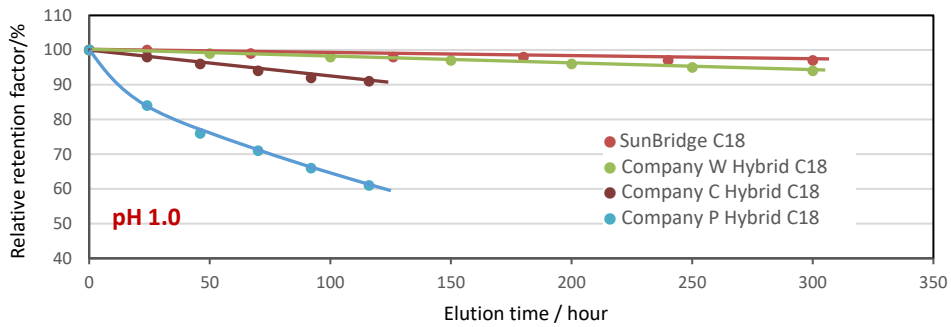
Company W Hybrid C18 showed severe tailing of metal-chelating, oxine.
Compared to Company W Hybrid C18, SunBridge C18 showed a higher number of plates and less tailing of peaks for metal-chelating and basic compounds.

Comparison of Stability under pH 11.5 and pH 1.0 conditions



Durable test condition (pH 11.5)
Column dimension: 150 x 4.6 mm
Mobile phase: Methanol/50mM potassium phosphate pH 11.5=10/90
Flow rate: 1.0 mL/min
Temperature: 40 ºC

Measurement condition
Mobile phase: Acetonitrile/water=70/30
Flow rate: 1.0 mL/min
Temperature: 40 ºC
Sample: 1 = Uracil, 2 = Butylbenzene



Durable test condition (pH 1.0)
Column dimension: 50 x 2.1 mm
Mobile phase: Acetonitrile/1.0% TFA pH1=10/90
Flow rate: 0.4 mL/min
Temperature: 80 ºC

Measurement condition
Same as above

SunBridge C18 showed almost the same or higher stability under pH 11.5 condition as Company W Hybrid C18, which shows an order of magnitude higher stability than other companies' hybrid C18. In addition, the decrease in retention due to alkali was suppressed by end-capping with a bidentate silylating reagent.

SunBridge

Ordering information

Packings	Inner diameter (mm)	2.1	3.0	4.6	10	20	US P category
	Length (mm)	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	
SunBridge C18, 5 µm	50	JB3941	JB3341	JB3441	------	------	L1
	100	JB3961	JB3361	JB3461	------	------	
	150	JB3971	JB3371	JB3471	------	------	
	250	JB3981	JB3381	JB3481	JB3781	JB3881	

* SunBridge columns packed with 3 µm and 1.8 µm particles will be released sequentially.

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Manufacturer

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