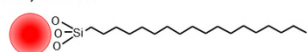


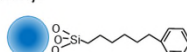
SunShell (Core shell silica) and Sunniest (Fully porous silica)

Reversed phase

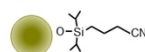
C18, C18-HT



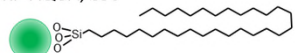
Phenyl



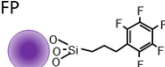
Cyano



RP-AQUA, C30

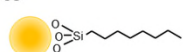


PFP

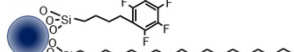


Normal phase / HILIC

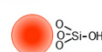
C8



PFP&C18



Silica



Ordering information

	Inner diameter (mm)	0.075	0.1	0.15	0.3	0.5	1.0	2.0 or 2.1	USP category
	Length (mm)	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	Catalog number	
SunShell C18, 2 µm	50	CB114P	CB114P	CB1K4P	CB1G4P	CB1F48	CB1141	CB1941	L1
	100	-----	-----	-----	-----	-----	CB1161	CB1961	
	150	CB117P	CB117P	CB1K7P	CB1G7P	CB1F78	CB1171	CB1971	
SunShell C18, 2.6 µm	50	CB614P	CB6H4P	CB6K4P	CB6G4P	CB6F48	CB6141	CB6941	
	100	-----	-----	-----	-----	-----	CB6161	CB6961	
	150	CB617P	CB6H7P	CB6K7P	CB6G7P	CB6F78	CB6171	CB6971	
Sunniest C18, 3 µm	50	EB214P	EB2H4P	EB2K4P	EB2G4P	EB2J48	EB2141	EB2241	L1
	100	-----	-----	-----	-----	-----	EB2161	EB2261	
	150	EB217P	EB2H7P	EB2K7P	EB2G7P	EB2J78	EB2171	EB2271	
SunShell Phenyl, 2.6 µm	50	CP614P	CP6H4P	CP6K4P	CP6G4P	CP6F48	CP6141	CP6941	L11
	100	-----	-----	-----	-----	-----	CP6161	CP6961	
	150	CP617P	CP6H7P	CP6K7P	CP6G7P	CP6F78	CP6171	CP6971	
SunShell C8-30HT, 3.4 µm	50	C5614P	C56H4P	C56K4P	C56G4P	C56F48	C56141	C56941	L7
	150	C5617P	C56H7P	C56K7P	C56G7P	C56F78	C56171	C56971	
	50	C6614P	C66H4P	C66K4P	C66G4P	C66F48	C66141	C66941	L26
SunShell C4-100, 2.6 µm	50	C6614P	C66H4P	C66K4P	C66G4P	C66F48	C66141	C66941	
	150	C6617P	C66H7P	C66K7P	C66G7P	C66F78	C66171	C66971	
	50	C6614P	C66H4P	C66K4P	C66G4P	C66F48	C66141	C66941	

- The end-fitting of a micro and nano-column is Parker type.
- The last letter of catalog number means a material of column body. P means PEEKSIL. Both 8 and L mean Glass lined tubing. 1 means SUS tubing.
- Regarding the upper limit of operating pressure, both P and 8 are 80MPa and L is 45MPa.



Distributor

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TEL: +81-6-6581-0885 FAX: +81-6-6581-0890

E-mail: info@chromanik.co.jp

URL: http://chromanik.co.jp



1911

UHPLC & HPLC Column for LC/MS



ChromaNik Technologies Inc.

A Novel End-capping for Reversed Phase for LC/MS SunShell and Sunniest column



BioNik Inc.

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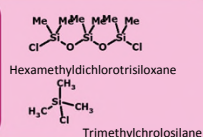


ChromaNik Technologies Inc.

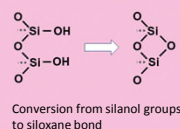
www.chromanik.co.jp

An End-capping has been recognized to be an important factor for a silica based reversed phase column. In this study, not only bonding with an end-capping reagent but also conversion of silanol groups to siloxane bond by heating were evaluated as an end-capping.

Double end-capping



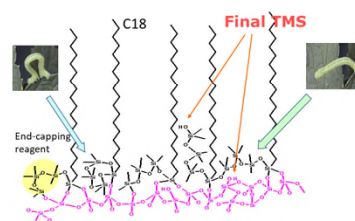
High temperature end-capping



➤ **Low bleeding**

➤ **High stability**

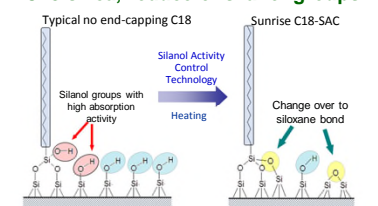
End-capping with hexamethyldichlorotrisiloxane and TMS on C18 silica



End-capping reagent moves like a *Geometrid caterpillar*, so that a functional group on the tip of the arm can bond with a silanol group which is located throughout.

We named this end-capping method as Sunniest double end-capping.

Another end-capping with heating on C18 silica, reduce of silanol groups

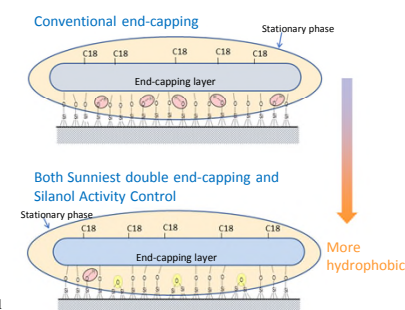


Non hydrated silanol group by influence of hydrophobicity of alkyl groups

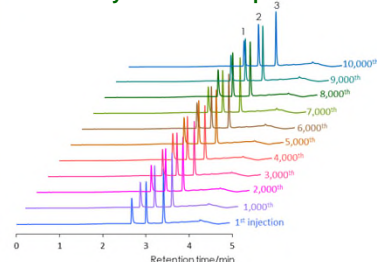
Hydrated silanol group without influence of alkyl groups

A basic compound shows no tailing on Sunrise C18-SAC because hydrated silanol groups don't make a basic compound tailing as well as silica column on HILIC mode shows no tailing for a basic compound.

Comparison of 2 kinds of end-capping



Stability under acidic pH condition

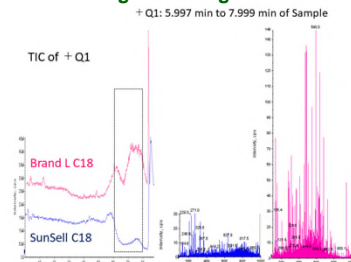


Column: SunShell C18 2.6 μ m, 50 x 2.1 mm
Mobile phase: A) 0.1% trifluoroacetic acid pH 2.0
B) Acetonitrile

Gradient program:	Time (min)	0	3	3.1	5
% B		10	90	10	10

Flow rate: 0.5 mL/min
Temperature: 40 °C
Detection: UV@270nm
Injection volume: 0.5 μ L
Sample: 1=Benzydamin (0.5 mg/mL), 2=Ketoprofen (0.04 mg/mL), 3= Indomethacin (0.05 mg/mL)

Bleeding test using LC/MS

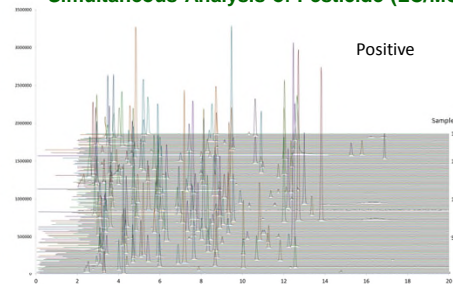


Column size: 50 x 2.1 mm
Mobile phase: A) 0.1% acetic acid
B) Acetonitrile

Gradient program:	Time (min)	0	1	5	7
% B		5	5	100	100

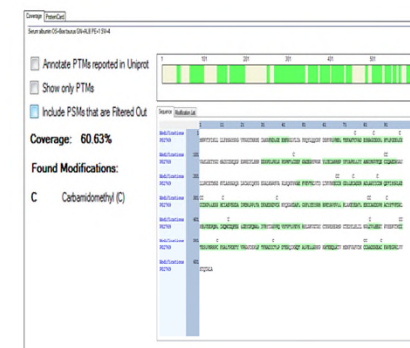
Flow rate: 0.4 mL/min
Temperature: 40 °C
MS : ABI API-4000
Ionization: Turboionspray (cation)
Measurement mode: Q1 Scan m/z 100-1000

Simultaneous Analysis of Pesticide (LC/MS)



Column: SunShell C18 2.6 μ m, 100 x 2.1 mm
Mobile phase: A) 0.5 mM Ammonium acetate in H₂O
B) 0.5 mM Ammonium acetate in CH₃OH
A/B = 95/5 – 1 min – 50/50 – 14 min – 2/98 – 5 min – 2/98 – 0.1 min – 95/5 – (Equilibrating, 10 min), v/v
Flow rate: 0.2 mL/min
Temperature: 40 °C
Detection: LC/MS/MS (QTRAP®4500: ESI, MRM)
Injection volume: 5 μ L (STD 10ppb)

IDA measurement using SunShell C18, 2.6 μ m 150 x 0.075 mm i.d. and Nano LC/MS



After verification with the database, the sequence identification rate of BSA was over 60%, which was a higher identification rate than conventional nano-columns.

Sample: Tryptic digest of BSA, 30 μ g on column
Detection mode: QTRAP5500
Detection method: IDA measurement
HPLC: Ultimate 3000 RSLC nano
Trap column: Acclaim PepMap 100, 3 μ m, 20 x 0.075 mm i.d.
Analytical column: SunShell C18, 2.6 μ m, 150 x 0.075 mm i.d.
Mobile phase: To trap column, 0.1% TFA (Sample load)
To anal. Column, A) 0.1% Formic acid, B) 0.1% Formic acid/Acetonitrile=20/80 Gradient in 25 min

Courtesy of a pharmaceutical company in Japan



Conclusion

- Hexamethyldichlorotrisiloxane was used as an end-capping reagent for a first end-capping step. Then trimethylchlorosilane (TMS) was used as an end-capping reagent for a second end-capping step.
- Silanol groups were changed to siloxane bonding by heating on C18 silica.
- Stability under acidic pH condition was improved by a proposed end-capping.