ChromaNik Technologies Inc.

HPLC column

Sunniest

Sunniest C18-HT 2 µm

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Sunniest C18-HT, 2μm

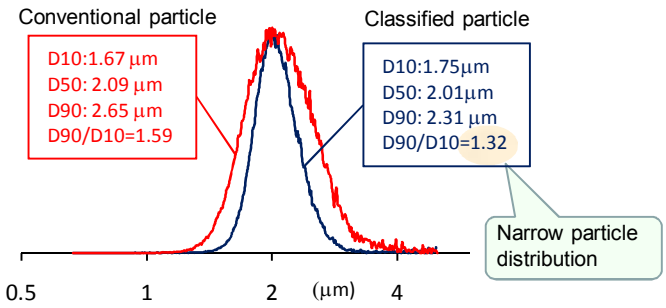
Features

- Low back pressure and high efficiency by precisely classified particle
- High pressure packing (10,000 psi) using hard silica gels with high pressure resistant • leads long column life without any void.
- Unique bonding technique for Sunniest (patent pending)
- The most suitable inner surface of column by special grinding

Sunniest technique to 2μm particle!

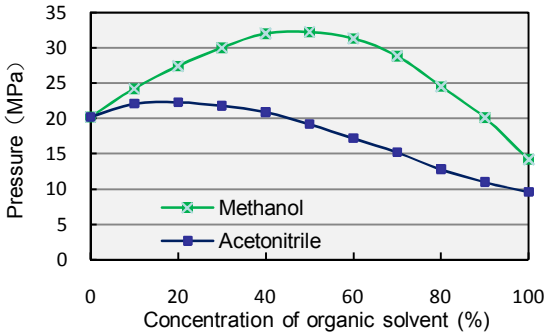
• Narrow Particle Distribution and Low Back Pressure

Measured by Coulter Counter method



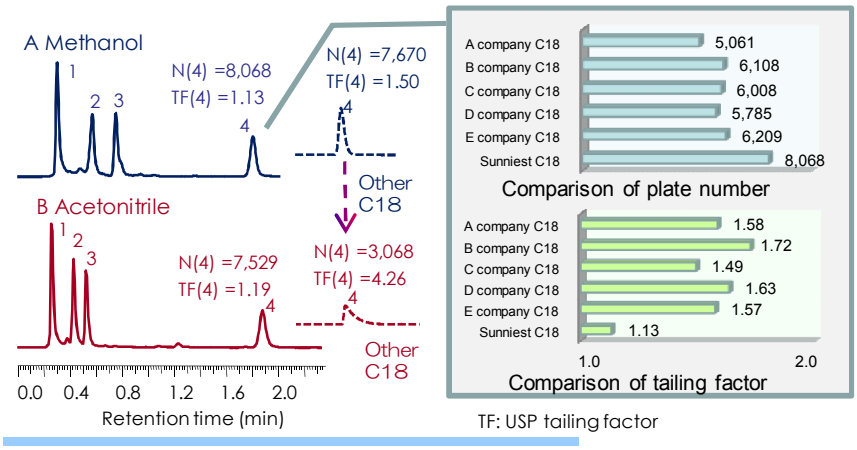
Conventional 2 μm silica gel particle was classified again. 20% volume was cut off from both sides respectively. Consequently column back pressure reduced more than 15%. Our 2 μm silica gel particle shows a half pressure to compare with the other sub-2 μm silica gel particle.

Column pressure using methanol or acetonitrile and water



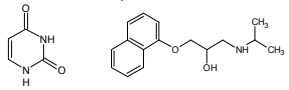
Column: Sunniest C18-HT, 2 μm 50 x 2.1 mm
Mobile phase: CH_3OH/H_2O, CH_3CN/H_2O
Flow rate: 0.5 mL/min
Temperature: 40 °C

• An Unique Modification (Patent Pending as Sunniest series)

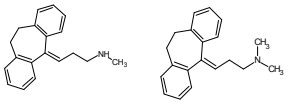


TF: USP tailing factor

Column: Sunniest C18-HT, 2 μm 50 x 2.0 mm
Mobile phase:
A) CH_3OH/20mM Phosphate buffer pH7.5 = 80/20
B) CH_3CN/20mM Phosphate buffer pH7.0 = 60/40
Flow rate: 0.4 mL/min
Pressure: A) 19.5 MPa, B) 13.5 MPa
Temperature: 40 °C
Sample: 1 = Uracil, 2 = Propranolol,



3 = Nortriptyline, 4 = Amitriptyline,



It is difficult to end-cap on sub 2 μm or 2 μm silica gel particle as well as 3 μm or 5 μm silica gel particle. Most sub 2 μm or 2 μm C18 columns show smaller plate number and higher tailing factor than Sunniest C18-HT. Sunniest C18-HT 2 μm shows good peak shape for amitriptyline under not only metahnol/phosphate buffer mobile phase but also acetonitrile/phosphate buffer mobile.

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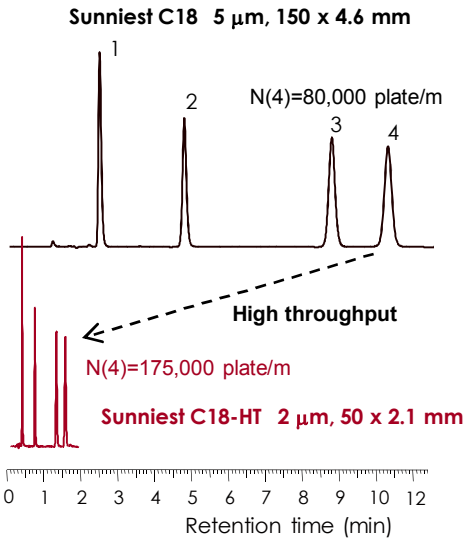
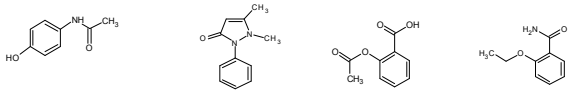
• Separation of Analgesics

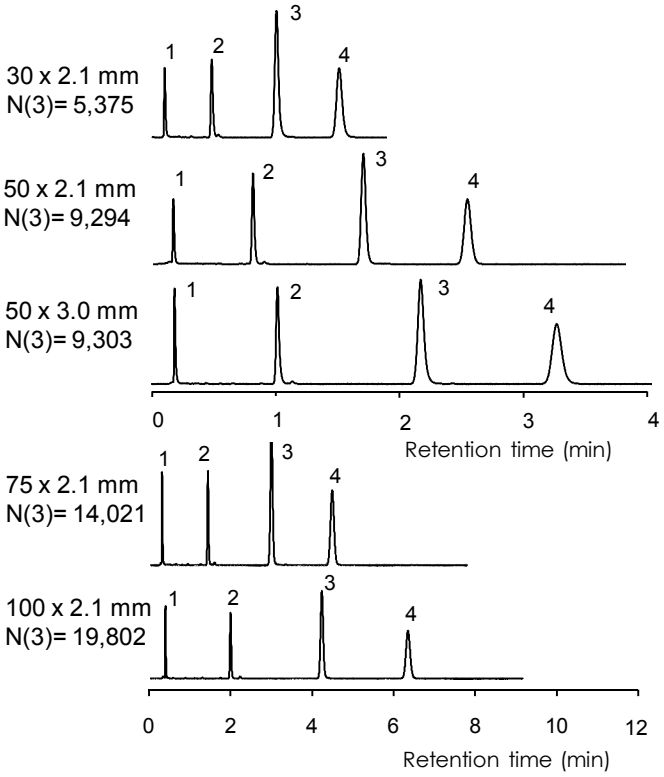


Mobile phase: CH_3CN/0.1% Formic acid = 20/80
Flow rate: 1.0 mL/min for 150 x 4.6 mm
0.6 mL/min for 50 x 2.1 mm
Temperature: 40 °C
Detection: UV@230 nm
Sample:
1=Acetaminophen, 2=Antipyrine, 3=Aspirin, 4=Ethenzamide



2 μm particle allows to reduce retention time because high efficiency is kept under high flow rate conditions. As shown the above chromatograms, analytical time reduced 1/8 without sacrifices of separation by using 2 μm, 50 x 2.1 mm column instead of 5 μm 150 x 4.6 mm column.

• Comparison of Plate Number



Mobile phase: CH_3CN/H_2O = 60/40
Flow rate: 0.6 mL/min for 2.1 x 30 mm and 2.1 x 50 mm
1.0 mL/min for 3.0 x 50 mm
0.4 mL/min for 2.1 x 75 mm and 2.1 x 100 mm
Temperature: 40 °C
Detection: UV@250 nm
Sample: 1=Uracil,
2=Toluene,
3=Acenaphthene,
4=Butylbenzene

• Characteristics of Sunniest C18-HT, 2 μm

Packings	Silica gel support			C18			
	Particle size (μm)	Pore diameter nm)	Specific surface area (m^2/g)	Carbon content (%)	Bonded phase	Maximum operating pressure	Available pH range
Sunniest C18-HT	2.0 (Coulter counter)	10	340	16	C18	70 MPa or 10,000 psi	1.5 - 10

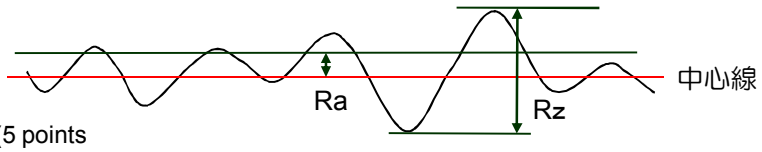
It is very important for 2 mm particle to have a capacity to resist pressure because of high column back pressure. The larger a pore volume of silica gel, the weaker a capacity to resist pressure. The silica gel with 0.85 ml/g of pore volume is used for Sunniest C18-HT, 2 mm, so that it have a high capacity to resist pressure and a high operating pressure.

• Surface Roughness on Inner Surface of Column

Parameter of surface roughness

Ra: Average roughness from center line

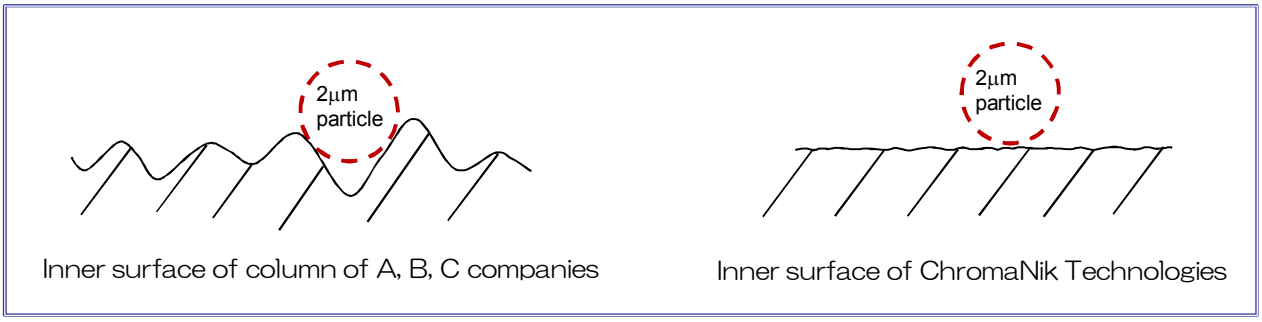
Rz: Roughness calculated from 10 points average (5 points of maximum and 5 points of minimum)



Schematic diagram of surface roughness

	G company	Y company	S1 company	S2 company	W company	ChromaNik Technologies
Ra	0.34 μm	0.32 μm	0.37 μm	0.03 μm	0.20 μm	0.01 μm
Rz	1.88 μm	1.62 μm	1.91 μm	0.19 μm	0.90 μm	0.10 μm

It is considered that surface roughness affects column performance. Surface asperity of ChromaNik Technologies column is 1/30 to 1/20 to compare with that of GL Sciences, YMC, Shimadzu and Waters columns. ChromaNIk Technologies provides a column with very smooth surface which is the most suitable for 2 μm particle packing.



Inner surface of column of A, B, C companies

Inner surface of ChromaNik Technologies

• Ordering Information of Sunniest C18-HT, 2 μm

Length (mm)	30	50	75	100
Inner diameter (mm)	Cat. No.	Cat. No	Cat. No	Cat. No
2.1	EB1931	EB1941	EB1951	EB1961
3.0	EB1331	EB1341	EB1351	EB1361

Manufacturer

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