

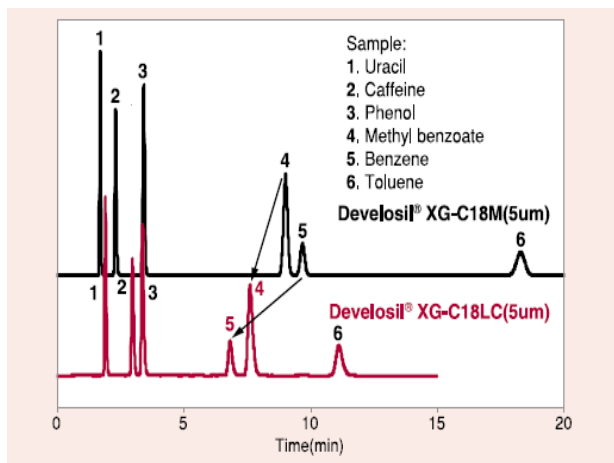
Develosil XG series

Develosil XG-C18LC

The 5th phase column of Develosil XG series. A carbon content is controlled and the effect of a polar group type end cap can be utilized to the utmost. It is suitable for a carbon compound or a sample with high polarity.

Develosil XG-C18LC was developed aiming at the column which can play an active part in the broad field. Not to mention ease of use, rich selectivity, high stability, and a good peak could be acquired.

1. From routine to method development



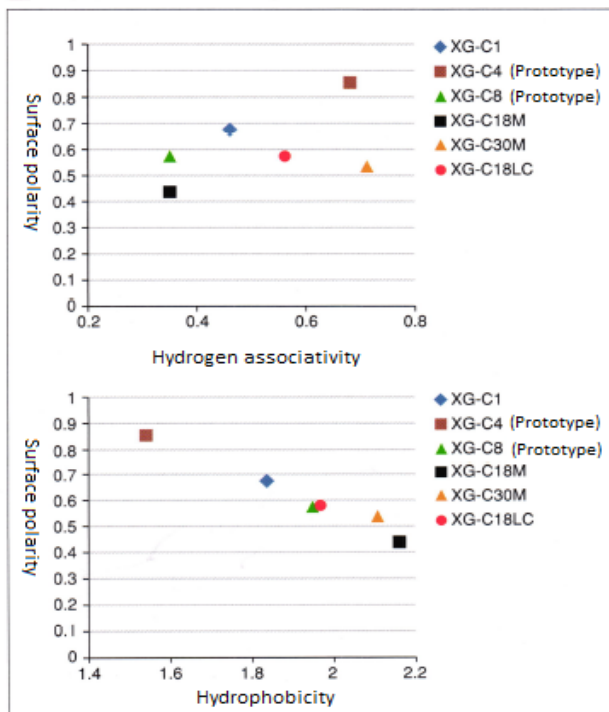
- Retention comparison with the ready-made article
Mobile phase: Methanol / Water = 50 / 50 Flow rate: 1.0 mL / min
Temperature: 40°C Detection: UV254nm

Develosil XG-C18LC physical-properties comparison

Product name	XG-C18LC	XG-C18M
Surface area	300m ² /g	300m ² /g
Pore diameter	14nm	14nm
Pore volume	1.10 mL/g	1.10 mL/g
Ligand	Octadecyl (Polymeric)	Octadecyl (Monomeric)
Carbon content	13%	19%
Endcapping	○	○
pH range	1.5 - 8	1.5 - 8
Use upper limit	20MPa	20MPa
USP	L1 equivalent	L1 equivalent

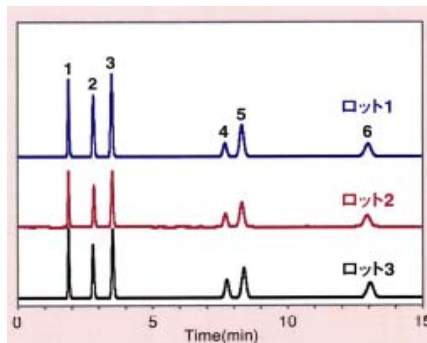
2. Analytica various in XG series

XG series column map



The new end cap method is adopted.

Methylation was adopted as the end cap until now. XG series has adopted the hydrophilic polar group type end cap method. Thereby, the operation of both of hydrophilic nature of the main hydrophobic + end cap polar groups C18 and C30 arises. Then, a new result is produced.



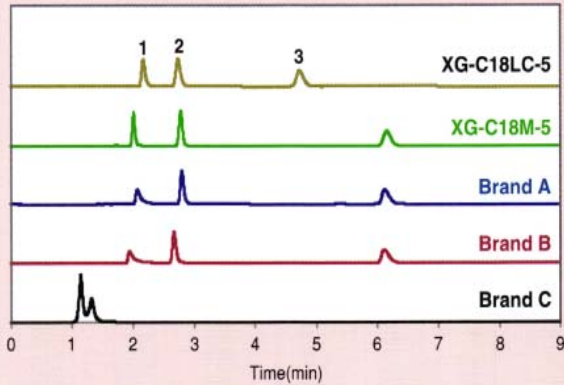
Reliable solidly

I add an inspection item more than conventional quality control and manage the XG series strictly.

Comparison between the lot

Column : Develosil® XG-C18LC-5 (4.6x150mm)
Mobile phase : Methanol/Water=50/50
Flow rate : 1.0mL/min
Temperature : 30°C
Detection : UV254nm
Sample : 1.Uracil 2.Caffeine 3.Phenol 4.Benzene 5.Methyl benzoate 6.Toluene

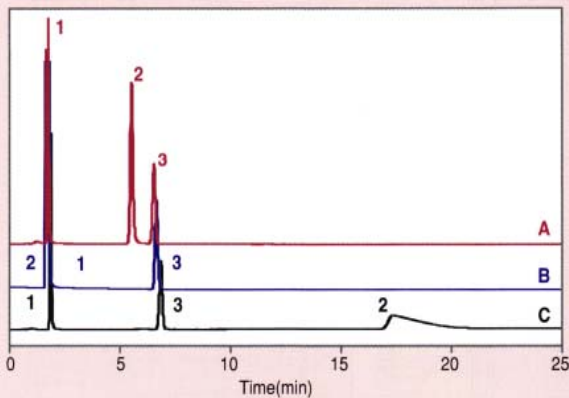
3. Excellence peak shape and wide selectivity



XG series is a useful column especially to an acidic compound. Even if it compares with other columns, good peak shape and high performance are shown.

■ Separation comparison of an organic acid

Mobile phase : Acetonitrile/0.2% Phosphoric acid=2/98
 Flow rate : 1.0mL/min
 Temperature : 40°C
 Sample : 1. Formic acid 2. Acetic acid 3. Propionic acid
 Detection : UV210nm



Generally the packing material using silica group material is a tailing trend to a basic compound.

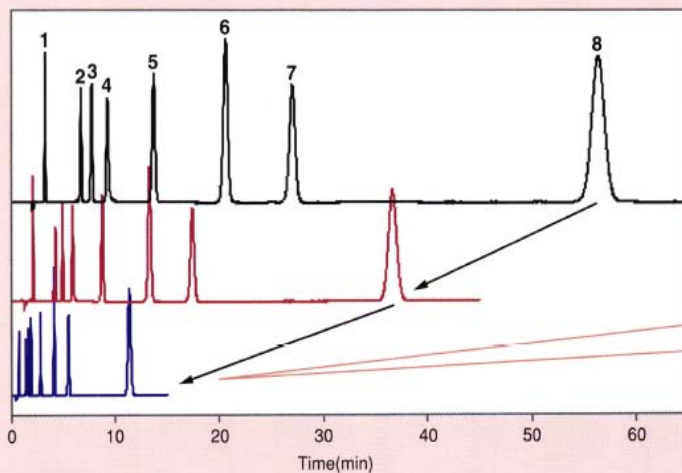
Good peak shape can be acquired by changing pH of a mobile phase. And, the width of the selectivity of condition examination can be expanded.

■ The retention behavior of pyridine accompanying pH change

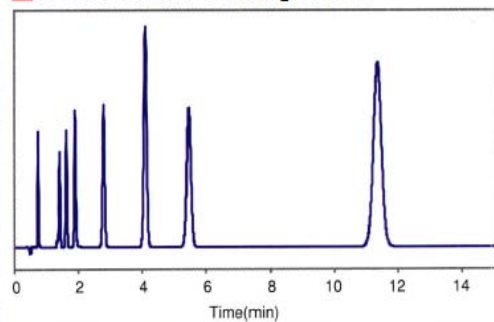
Mobile phase : A) Acetonitrile/20mM Ammonium phosphate(pH8)=20/80
 B) Acetonitrile/0.2% Phosphoric acid(pH1.8)=20/80
 C) Acetonitrile/Water=20/80
 Flow rate : 1.0mL/min
 Temperature : 40°C
 Sample : 1. Uracil 2. Pyridine 3. Phenol
 Detection : UV254nm

4. Applied to high-speed separation

Develosil HB series is the column for high-speed separation which set column resisting pressure to 50MPa.



■ HB XG-C18LC-3 Enlarged view

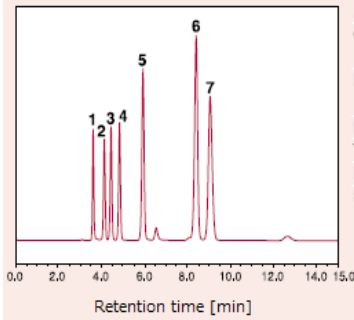


■ High-speed separation-size model

Column : (1) Develosil® XG-C18LC-5 4.6x150mm
 (2) Develosil® XG-C18LC-3 4.6x100mm
 (3) Develosil® HB XG-C18LC-3 2.0x100mm
 Mobile phase : Acetonitrile/0.2% Formic acid=25/75
 Flow rate : (1)1.0mL/min (2)1.0ml/min (3)0.6ml/min
 Temperature : 40°C
 Sample : 1. p-Hydroxy benzoic acid 2. Sorbic acid 3. Methyl p-Hydroxy benzoate 4. Dehydro acetic acid
 5. Ethyl p-Hydroxy benzoate 6. Methyl benzoate 7. Propyl p-Hydroxy benzoate 8. Butyl p-Hydroxy benzoate
 Detection : UV240nm

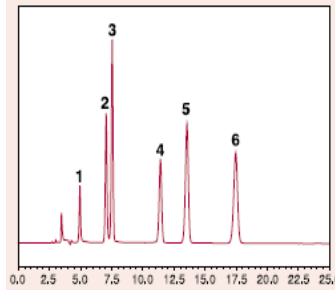
5. Application

1. Analysis of the organic acid



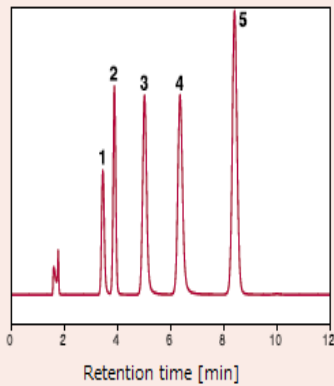
Analytical conditions;
 Column : Develosil® XG-C18LC(5um) 4.6x250mm
 Mobile phase : Methanol/ 0.2%Phosphoric acid=2/98
 Flow rate : 1.0ml/min
 Temperature : 30°C
 Detection : UV210nm
 Sample : 1. Formic acid (0.20uL/mL)
 2. Malic acid (0.33mg/mL)
 3. Malonic acid (0.31mg/mL)
 4. Acetic acid (0.50uL/mL)
 5. Maleic acid (4.3ug/mL)
 6. Acrylic acid (25nL/mL)
 7. Popionic acid (1.0uL/mL)
 Injection volume : 2uL
 System : Thermo Scientific ultimate 3000 series

2. Analysis of the phenol acid



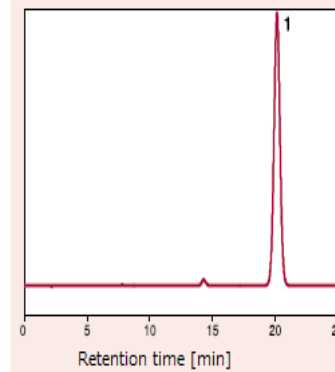
Analytical conditions;
 Column : Develosil® XG-C18LC(5um) 4.6x250mm
 Mobile phase : Acetonitrile/ 0.1%Phosphoric acid=20/80
 Flow rate : 1.0ml/min
 Temperature : 40°C
 Detection : UV210nm
 Sample : 1. Chlorogenic acid (0.43mg/mL)
 2. Caffeic acid (0.42mg/mL)
 3. Vanillic acid (0.37mg/mL)
 4. p-Coumaric acid (0.50mg/mL)
 5. m-Coumaric acid (0.47mg/mL)
 6. o-Coumaric acid (0.47mg/mL)
 Injection volume : 10uL
 System : Thermo Scientific ultimate 3000 series

3. Analysis of the nucleic acid base



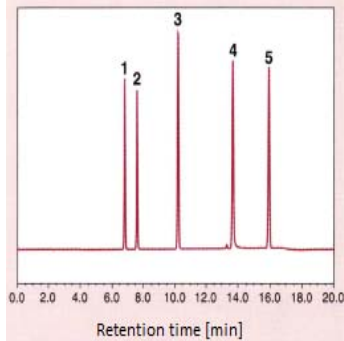
Analytical conditions;
 Column : Develosil® XG-C18LC(5um) 4.6x150mm
 Mobile phase : 10mM Sodium phosphate (pH7.0)
 Flow rate : 1,0ml/min
 Temperature : 30°C
 Detection : UV254nm
 Sample : 1. Cytosine (0,73mg/mL)
 2. Urasil (0,77mg/mL)
 3. Cytidine (0,86mg/mL)
 4. Uridine (0,78mg/mL)
 5. Thymine (0,80mg/mL)
 Injection volume : 1,0uL
 System : Jasco2000series

4. Analysis of the diclofenac Na



Analytical conditions;
 Column : Develosil® XG-C18LC(7um) 4.6x250mm
 Mobile phase : Farmacopoeia diclofenac sodium is followed
 Flow rate : 1,5ml/min
 Temperature : 40°C
 Detection : UV240nm
 Sample : 1. Diclofenac Sodium
 Injection volume : 20uL
 System : Jasco2000series

5. Analysis of flavonoid

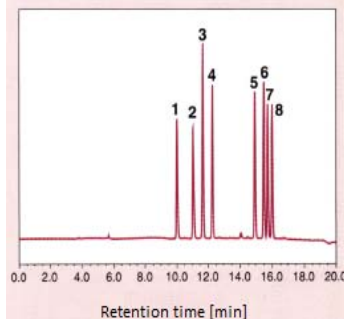


Analytical conditions;
 Column : Develosil® XG-C18LC(5um) 4.6x150mm
 Mobile phase : A) 0.2% Formic acid - Water
 B) 0.2% Formic acid - Acetonitrile
 Flow rate : 1.0ml/min
 Temperature : 40°C
 Detection : UV254nm
 Sample : 1. Puerarin (0.31mg/mL)
 2. Daidzin (0.31mg/mL)
 3. Daidzein (0.33mg/mL)
 4. Biochamin A (0.28mg/mL)
 5. Ipriflavone (0.28mg/mL)
 Injection volume : 10uL
 System : Thermo Scientific ultimate 3000 series

Gradient;

Time (min)	Flow rate (ml/min)	%A	%B	%C	%D
0.0	1.0	100	0	0	0
15.0	1.0	20	80	0	0
15.1	1.0	100	0	0	0

6. Analysis of PTH-amino acid



Analytical conditions;
 Column : Develosil® XG-C18LC(5um) 4.6x150mm
 Mobile phase : A) 0.2% Phosphoric acid - Water
 B) 0.2% Phosphoric acid - Acetonitrile
 Flow rate : 1.0ml/min
 Temperature : 40°C
 Detection : UV254nm
 Sample : 1. PTH-I-Istidino
 2. PTH-Arginine
 3. PTH-Aspartic acid
 4. PTH-Glutamic acid
 5. PTH-Methionine
 6. PTH-Tryptophan
 7. PTH-Phenylalanine
 8. PTH-Leucine
 System : Thermo Scientific ultimate 3000 series

Gradient;

Time (min)	Flow rate (ml/min)	%A	%B	%C	%D
0.0	1.0	100	0	0	0
20.0	1.0	0	100	0	0
30.0	1.0	0	100	0	0
30.1	1.0	100	0	0	0

6. Price List

I.D. 2.0mm, 3.0mm, 4.0mm same price

Analytical column

■ Conventional Columns

Packing name	Column Size (I.D x Length)	Particle Size	P/N
XG-C18LC	4.6 x 35mm	3	55-346035W
	4.6 x 50mm		55-346050W
	4.6 x 75mm		55-346075W
	4.6 x 100mm		55-346100W
	4.6 x 150mm		55-346150W
	4.6 x 250mm		55-346250W
	4.6 x 35mm	5	55-546035W
	4.6 x 50mm		55-546050W
	4.6 x 75mm		55-546075W
	4.6 x 100mm		55-546100W
	4.6 x 150mm		55-546150W
	4.6 x 250mm		55-546250W

■ Guard column for conventional

Inside diameter 4.0mm, 4.6mm

product name	P/N
Guard cartridge Set 4.0x10mm 【Holder(1piece) + cartridge 4.0x10mm(1piece)】	55-540010W
Guard Cartridge 4.0x10mm (4pieces)	55-540010C
Guard Cartridge Holder 4.0 x 10mm	HO00040010C

Remarks

Guard cartridge Set : When using it for the first time. It can be used immediately. Guard cartridge (4pieces) : Cartridge for exchange

Guard cartridge Holder : If there is not a cartridge for exchange, I cannot use it.

■ Semi-micro columns

Packing name	Column Size (I.D x Length)	Particle Size	P/N
XG-C18LC	2.0 x 35mm	3	55-320035W
	2.0 x 50mm		55-320050W
	2.0 x 75mm		55-320075W
	2.0 x 100mm		55-320100W
	2.0 x 150mm		55-320150W
	2.0 x 250mm		55-320250W
	2.0 x 35mm	5	55-520035W
	2.0 x 50mm		55-520050W
	2.0 x 75mm		55-520075W
	2.0 x 100mm		55-520100W
	2.0 x 150mm		55-520150W
	2.0 x 250mm		55-520250W

■ Guard column for Semi-micro

Inside diameter 2.0mm, 3.0mm

product name	P/N
Guard cartridge Set 1.5x10mm 【Holder(1piece) + cartridge 4.0x10mm(1piece)】	55-515010W
Guard Cartridge 1.5x10mm (4pieces)	55-515010C
Guard Cartridge Holder 1.5 x 10mm	HO00015010C

Prep column

Packing name	Column Size (I.D x Length)	Particle Size	P/N
XG-C18LC	10.0 x 150mm	5	55-5P1150W
	10.0 x 250mm		55-5P1250W
	20.0 x 150mm		55-5P2150W
	20.0 x 250mm		55-5P2250W

■ Guard column

Packing name	Column Size (I.D x Length)	Particle Size	P/N
XG-C18LC	8.0 x 10 mm (for I. D. 10.0mm)	5	55-580010W
	20.0 x 50 mm (for I.D. 20.0 mm)		55-5P2050W

The column for high-speed separation

Packing name	Particle Size	Column Size (I.D x Length)	Qty	P/N
XG-C18LC	3	2.0 x 35mm	1	177-3200351
			4	177-3200354
		2.0 x 50mm	1	177-3200501
			4	177-3200504
		2.0 x 75mm	1	177-3200751
			3	177-3200753
		2.0 x 100mm	1	177-3201001
			3	177-3201003
		2.0 x 150mm	1	177-3201501
			3	177-3201503