

The packed column for HPLC

Develosil XG-C1

It is the column which made C1 (Trimethyl) group modify.
There is performance which is not in C1 conventional column, and it contributes to many analysis systems.

1. Specification and performance

Develosil XG-C1 has introduced C1 (Trimethyl radical) into the inhouse high grade silica gel.

(USP column code: Equivalent to L13)

The retention and separation which cannot be predicted in C1 conventional column by the height of surface area and special end cap treatment are attained.

It corresponds to many analysis kinds, such as a basic compound, a vitamin, and drugs, including an organic acid.

Characteristic of Develosil XG-C1

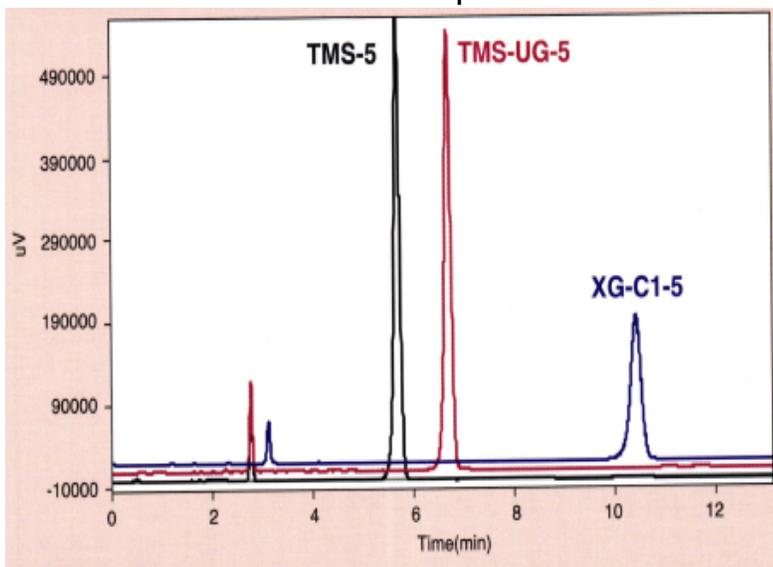
Surface area	450 m ² /g
Pore diameter	10 nm
Pore volume	1.15 mL/g
Ligand	Trimethyl
Carbon content	7.50%
Endcapping	○
pH range	pH 1.5 - 8
Use upper limit pressure	20 Mpa
Use maximum temperature	50 °C

2. The trait of Develosil XG-CN

Product Name	Surface area (m ² /g)	Pore diameter(nm)	Pore capacity (mq/ml)	Carbon content (%)	Endcap
XG-C1-5	450	10	1.15	7.3	Specially
TMS-UG-5	300	14	1.05	4.5	Double
TMS-5	350	12	1.05	4	Single

3. STD separation comparison

Develosil C1 column Comparison of standard chromatogram



Conditions;	
Column	: Develosil® TMS-5, TMS-UG-5, XG-C1-5
Size	: 4.6x150mm
Mobile phase	: Acetonitrile/Water=70/30
Flow rate	: 1.0ml/min
Temperature	: 30°C
Detection	: UV254nm
Sample	: 1.Benzene 2.1,3,5-Triphenylbenzene

Separation comparison by a STD sample

Though it has the same ligand, separation patterns differ, respectively.

If it is XG-C1, about 1.5 times as many retention is shown rather than C1 conventional column.

Compared with C1 conventional column, a high grade silica gel with large surface area is adopted as a base material.

Since surface area is large, retention is a column which has the feature of not only a big tree but XG series.

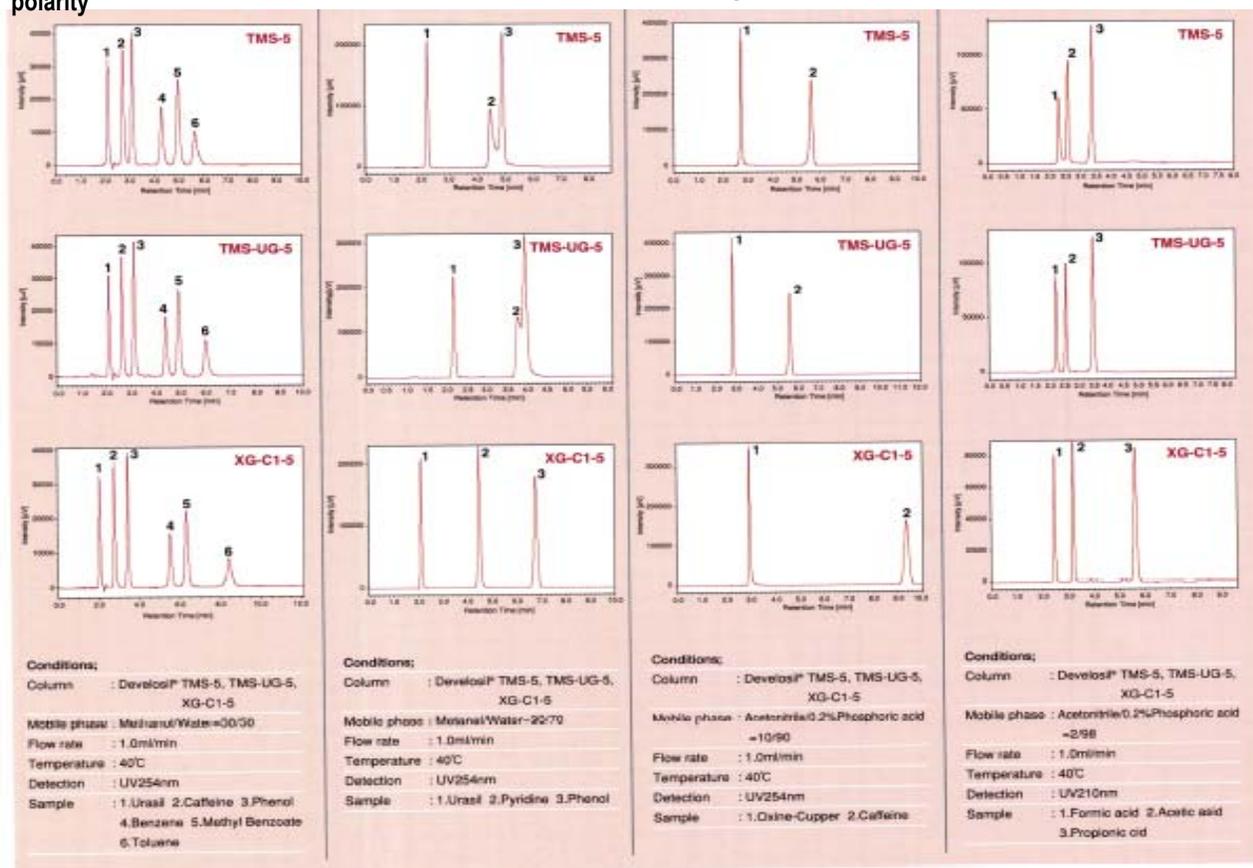
4. Separation characteristics by C1 modification type Packing material

Hydrogen bonding capacity, hydrophobicity, surface polarity

Basic compound

Metal coordination property

Acidic compound



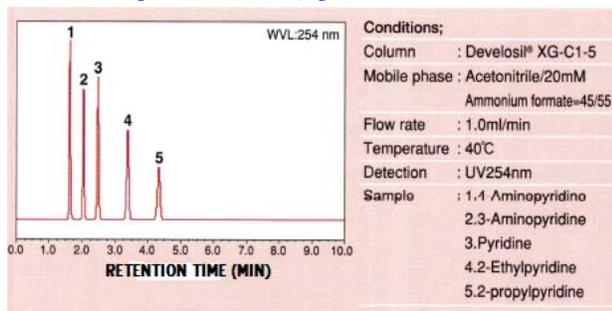
Develosil XG-C1 shows good separation as compared with C1 conventional column.

In separation of a "basic compound", what was insufficiency of separation is separated finely, and the peak shape of pyridine is also sharp. And, the very good result is shown also in separation of an "acidic compound", and the characteristics which are not in C18 or C30 are shown.

✳ It is carrying out on specific terms. It becomes separable by changing terms also in C1 conventional column.

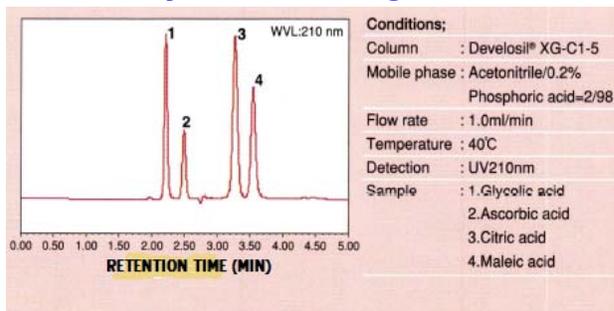
5. Application

1. Analysis of a pyridine derivative



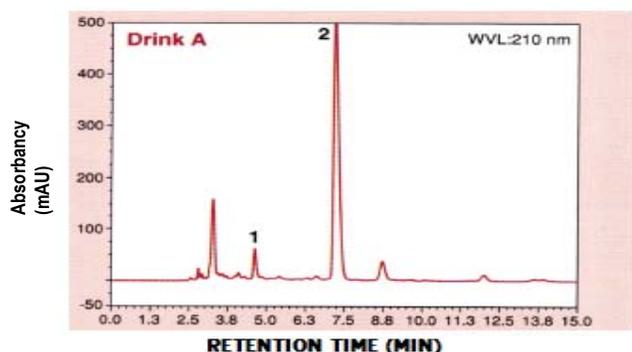
Form also with sharp pyridine represented by the basic compound

2. Analysis of an organic acid

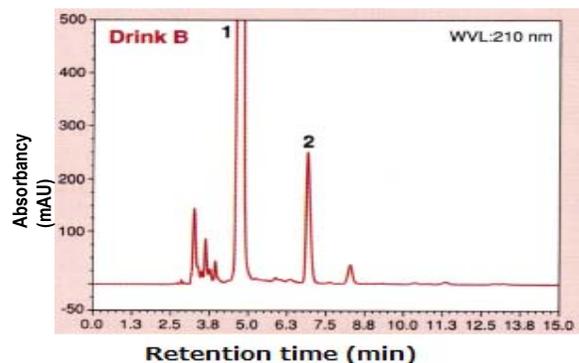


In C18, the organic acid which is hard to separate can also be divided finely.

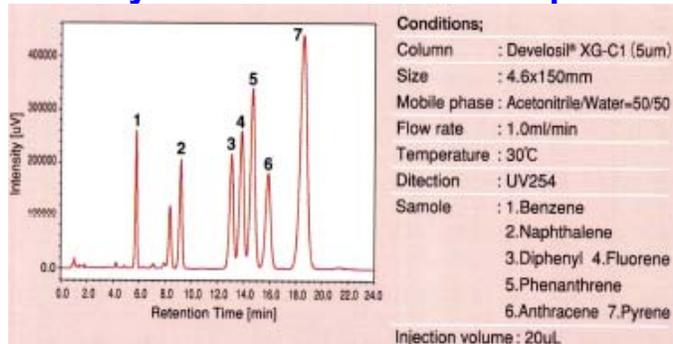
3. Analysis of ascorbic acid in a drink, and citric acid



Ascorbic acid and citric acid contained in two sorts of commercial item drinks were analyzed.

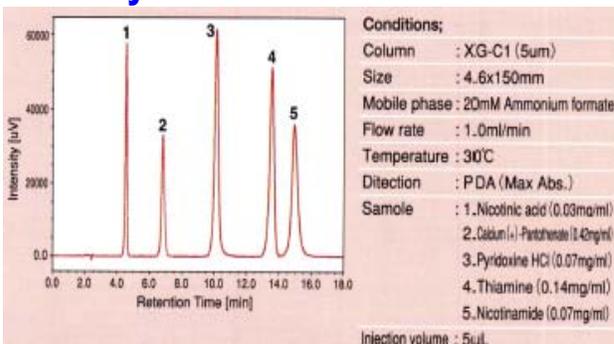


4. Analysis of an aromatic compound



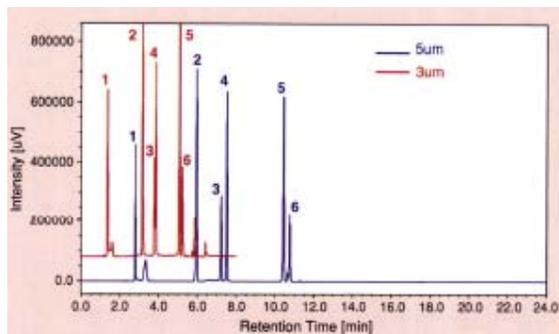
Analysis of various aromatic compounds is possible. All the degrees of separation attain above one.

5. Analysis of water soluble vitamin



The vitamin analyzed until now using C18 or C30 can be analyzed also by XG-C1.

6. Analysis of drugs



Drugs are analyzed by gradient elution. By using particle diameter 3µm, analytical time is shortened sharply.

Conditions;
 Column : Develosil® XG-C1 (5µm, 3µm)
 Size : 4.6x150mm (5µm) , 4.6x75mm (3µm)
 Mobile phase : A) Water + 0.1%Phosphoric acid
 B) Acetonitrile + 0.1%Phosphoric acid
 Flow rate : 1.0ml/min
 Temperature : 30°C
 Detection : PDA (Max abs.)
 Sample : 1. Uracil (0.08mg/ml)
 2. Acetaminophen (0.10mg/ml)
 3. Guaifenesin (0.08mg/ml)
 4. Diphenhydramine (0.10mg/ml)
 5. Flurbiprofen (0.08mg/ml)
 6. Ibuprofen (0.08mg/ml)
 Injection volume : 5.0µL

Gradient :

5µm		
Time (min)	A (%)	B (%)
0	98	2
10	2	98
15	2	98
15.1	98	2

3µm		
Time (min)	A (%)	B (%)
0	98	2
3.3	2	98
4.95	2	98
5	98	2

TO The New World—

for Liquid Chromatography

Develosil™ XG-C18

for Liquid Chromatography

NOMURA CHEMICAL CO., LTD.

for Liquid Chromatography

Develosil™ XG-C18

It is new series release from Develosil™. An original new technique is included in this column. Develosil™ XG-C18 supports the wide field including medicine and agriculture and the food.

1 Specifications

Develosil™ XG-C18

● Silica base

This product uses a Silicagel with a few impurities.

● Usability

As for this column, equilibrium is early and the pressure is low, too.

● Stability

The Develosil™ series produces it from a Silicagel to a column in the company.

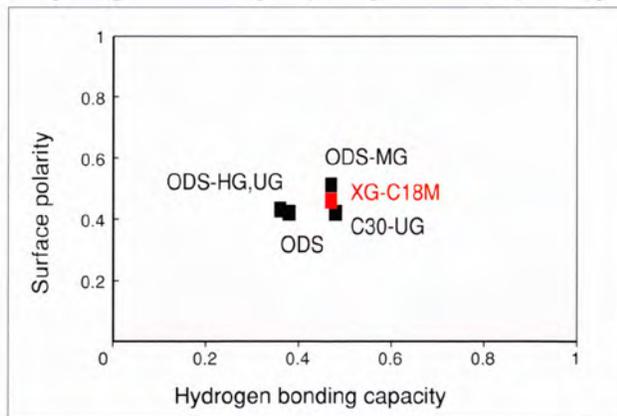
We carry out severe quality control in all processes.

Surface area	300m ² /g
Pore diameter	14nm
Pore volume	1.10mL/g
Ligand	Octadecyl (Mono)
Carbon content	19%
Endcapping	○
pH range	pH1.5-8

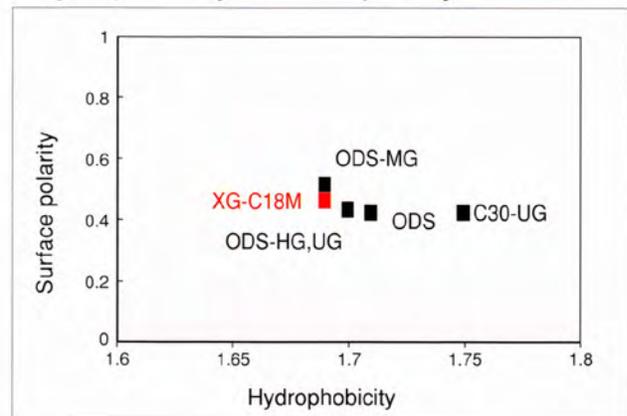
2 Product inspection of Develosil™ XG-C18

Develosil™ XG-C18

1. Hydrogen bonding capacity - Surface polarity

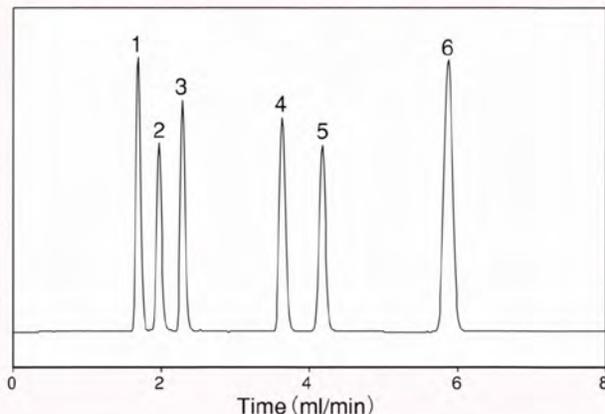


2. Hydrophobicity - Surface polarity



The parameter mentioned above was calculated than the following selectivity.

- Hydrogen bonding capacity α (Caffeine/Phenol)
- Hydrophobicity α (Toluene/Benzene)
- Surface polarity (Methyl Benzoate/Toluene)

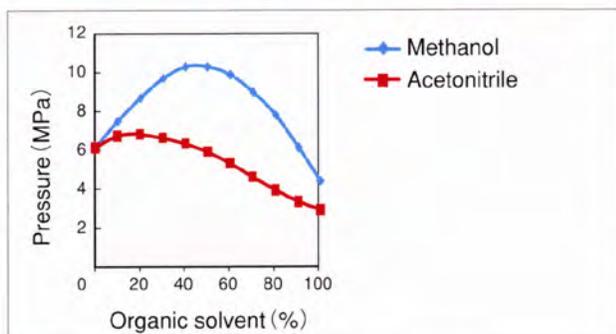


Conditions:

Column : DevelosilXG-C18M (5 μ m)
 Size : 4.6x150mm
 Mobile Phase : Methanol/Water=70/30
 Flow rate : 1.0ml/min
 Temperature : 40°C
 Detection : UV254nm
 Sample : 1.Uracil (t⁰) 2.Caffeine 3.Phenol
 4.Methyl Benzoate 5.Benzene
 6.Toluene

③ Column pressure of Develosil™ XG-C18

Develosil™ XG-C18



Conditions:
 Column : DevelosilXG-C18M (5um)
 Size : 4.6x150mm
 Mobile Phase : Methanol/Water
 Acetonitrile/Water
 Flow rate : 1.0ml/min

Develosil™ XG series shows low pressure.

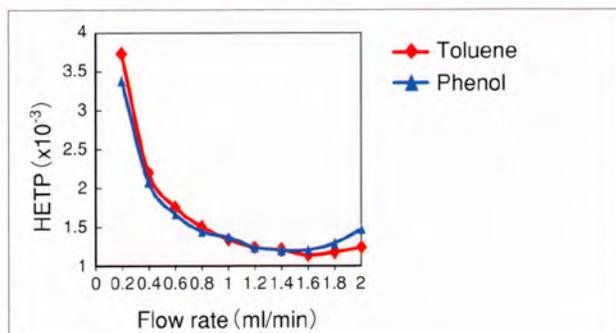
Follows are enabled.

- Flow rate up
- High composition of the pressure is usable

※These data are pressure displayed by a system.

④ van Deemter plot of Develosil™ XG-C18

Develosil™ XG-C18

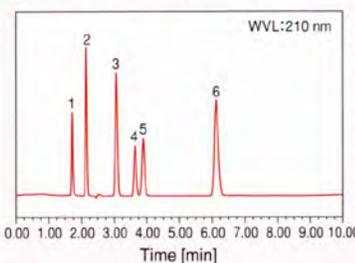


Conditions:
 Column : DevelosilXG-C18M (5um)
 Size : 4.6x150mm
 Mobile Phase : (Toluene) Acetonitrile/Water=50/50
 (Phenol) Acetonitrile/Water=10/90
 Temperature : 40C
 Detection : UV254nm
 Sample : Toluene (0.01mL/mL)
 Phenol (0.05mg/mL)
 Injection volume : 1.0uL

⑤ Analysis example

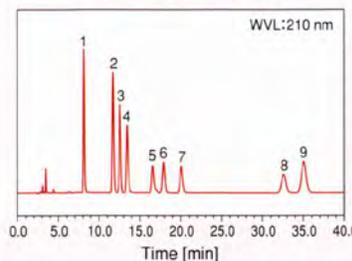
Develosil™ XG-C18

1. Analysis of organic acid



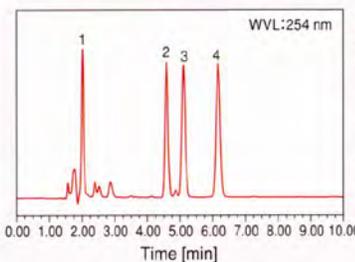
Conditions :
 Column : Develosil XG-C18M (5um)
 Size : 4.6x150mm
 Mobile Phase : Acetonitrile/0.2%
 Phosphoric acid=2/98
 Flow rate : 1.0ml/min
 Temperature : 40C
 Detection : UV210nm
 Sample : 1.Oxalic acid
 2.L-Ascorbic acid/3.Citric acid
 4.Succinic acid/5.DL-Malic acid
 6.Propionic acid

2. Analysis of pesticide



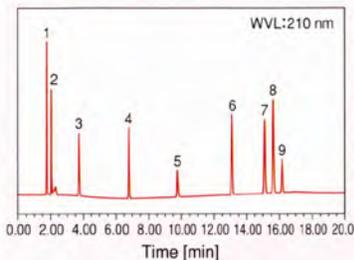
Conditions :
 Column : Develosil XG-C18M (5um)
 Size : 4.6x250mm
 Mobile Phase : Acetonitrile/
 0.1%Phosphoric acid=40/60
 Flow rate : 1.0ml/min
 Temperature : 40C
 Detection : UV210nm
 Sample : 1.Thiophanate-methyl
 2.Bentazone/3.Thiuram/4.2,4-PP
 5.Triclopyr/6.Flazasulfuron/7.MCPP
 8.Halosulfuron-methyl/9.Dymron

3. Analysis of steroid



Conditions :
 Column : Develosil XG-C18M (5um)
 Size : 4.6x150mm
 Mobile Phase : Acetonitrile/Water=50/50
 Flow rate : 1.0ml/min
 Temperature : 40C
 Detection : UV254nm
 Sample : 1.Estriol/2.β-Estradiol
 3.17α-Estradiol/4.Estron

4. Analysis of pharmaceutical products



Conditions :
 Column : Develosil XG-C18M (5um)
 Size : 4.6x150mm
 Mobile Phase : A) Acetonitrile+0.2%Phosphoric acid
 B) 0.2%Phosphoric acid
 Gradient : A) 10%-70% (15min)→70% (25min)
 Flow rate : 1.0ml/min
 Temperature : 40C
 Detection : UV210nm
 Sample : 1.Pyridoxine HCl
 2.1-Phenylephrine HCl/3.Acetaminophen
 4.Guaifenesin/5.Diphenhydramine HCl
 6.Ketoprofen/7.Flurbiprofen
 8.Indomethacin/9.Ibuprofen

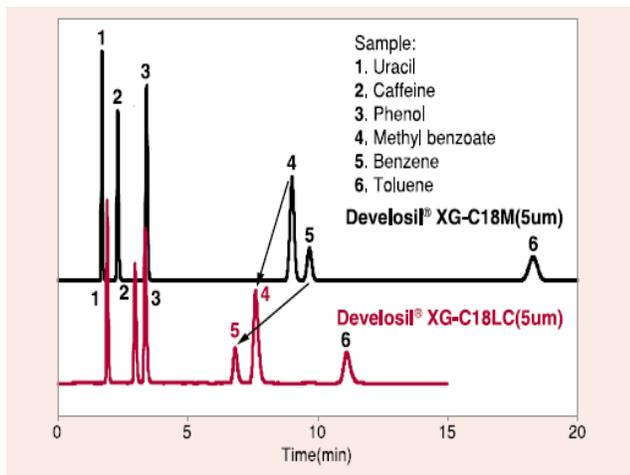
Develosil XG series

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



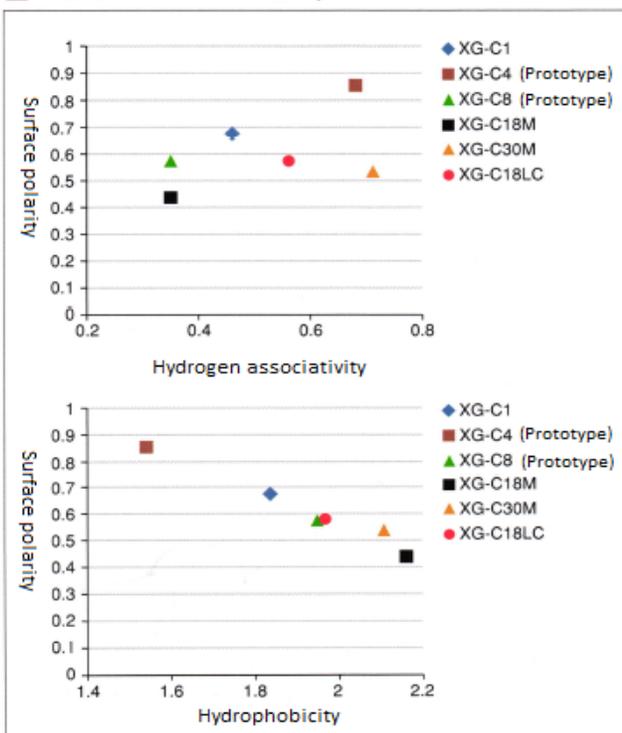
- Retention comparison with the ready-made article
 Mobile phase: Methanol / Water = 50 / 50 Flow rate: 1.0 mL / min
 Temperature: 40°C Detection: UV254nm

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

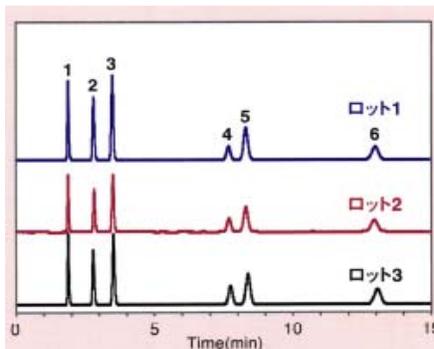
2. Analytica various in XG series

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.



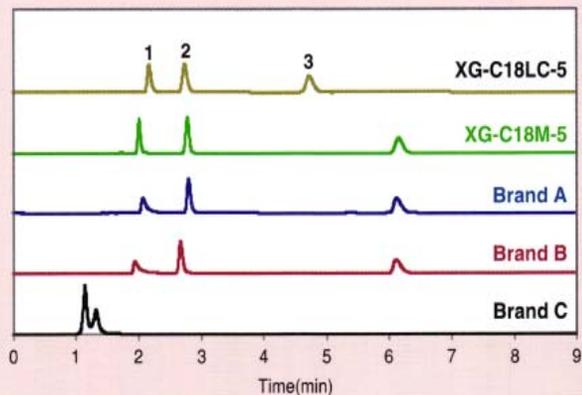
Reliable solidity

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

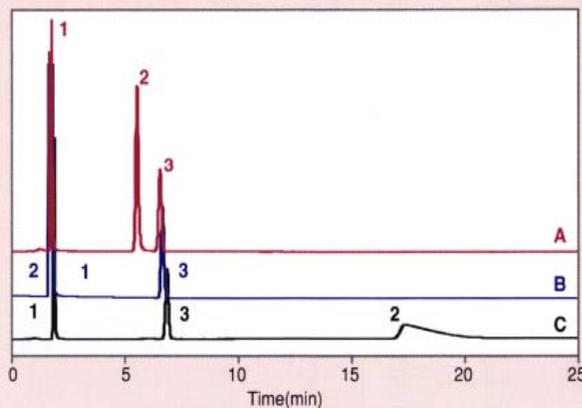
3. Excellence peak shape and wide selectivity



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



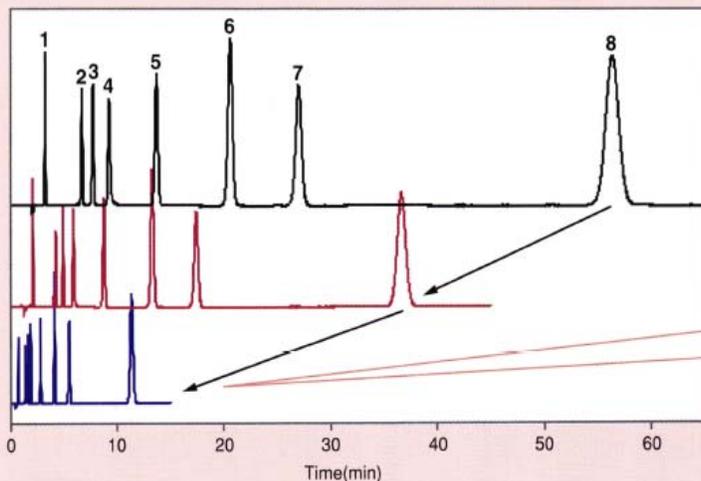
Generally the packing material using silica group material is a tailing trend to a basic compound. Good peak shape can be acquired by changing pH of a mobile phase. And, the width of the selectivity of condition examination can be expanded.

■ The retention behavior of pyridine accompanying pH change

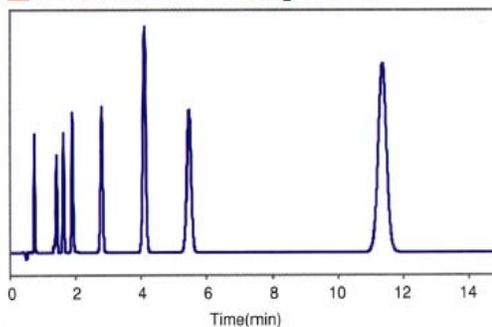
Mobile phase : A) Acetonitrile/20mM Ammonium phosphate(pH8)=20/80
 B) Acetonitrile/0.2% Phosphoric acid(pH1.8)=20/80
 C) Acetonitrile/Water=20/80
 Flow rate : 1.0mL/min
 Temperature : 40°C
 Sample : 1. Uracil 2. Pyridine 3. Phenol
 Detection : UV254nm

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

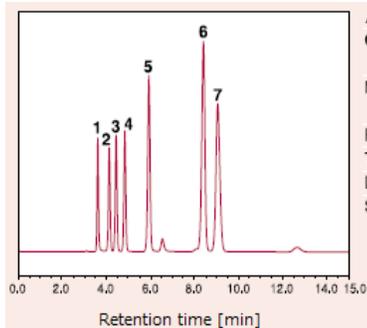


■ High-speed separation-ize model

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

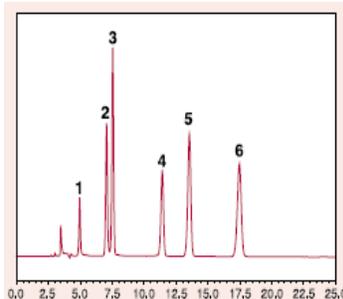
5. Application

1. Analysis of the organic acid



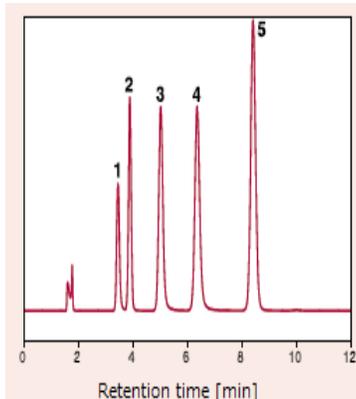
Analytical conditions;
 Column : Develosil® XG-C18LC(5um) 4.6x250mm
 Mobile phase : Methanol/ 0.2%Phosphoric acid=2/98
 Flow rate : 1.0ml/min
 Temperature : 30°C
 Detection : UV210nm
 Sample : 1. Formic acid (0.20uL/mL)
 2. Malic acid (0.33mg/mL)
 3. Malonic acid (0.31mg/mL)
 4. Acetic acid (0.50uL/mL)
 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



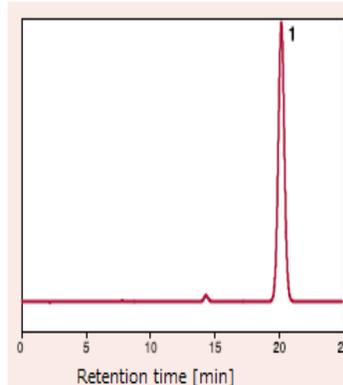
Analytical conditions;
 Column : Develosil® XG-C18LC(5um) 4.6x250mm
 Mobile phase : Acetonitrile/ 0.1%Phosphoric acid=20/80
 Flow rate : 1.0ml/min
 Temperature : 40°C
 Detection : UV210nm
 Sample : 1. Chlorogenic acid (0.43mg/mL)
 2. Caffeic acid (0.42mg/mL)
 3. Vanillic acid (0.37mg/mL)
 4. p-Coumaric 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



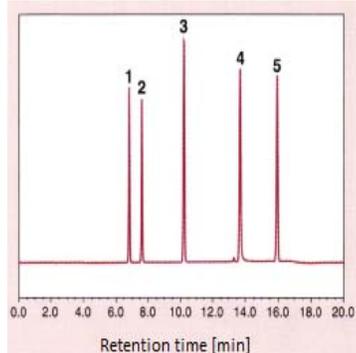
Analytical conditions;
 Column : Develosil® XG-C18LC(5um) 4.6x150mm
 Mobile phase : 10mM Sodium phosphate (pH7.0)
 Flow rate : 1.0ml/min
 Temperature : 30°C
 Detection : UV254nm
 Sample : 1. Cytosine (0.73mg/mL)
 2. Urasil (0.77mg/mL)
 3. Cytidine (0.86mg/mL)
 4. Uridine (0.78mg/mL)
 5. Thymine (0.80mg/mL)
 Injection volume: 1.0uL
 System : Jasco2000series

4. Analysis of the diclofenac Na



Analytical conditions;
 Column : Develosil® XG-C18LC(7um) 4.6x250mm
 Mobile phase : Pharmacopoeia 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

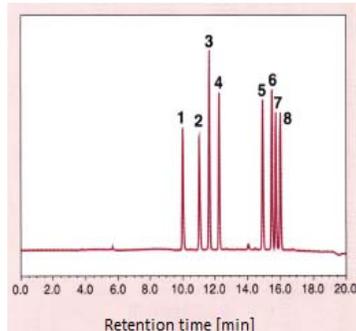


Analytical conditions;
 Column : Develosil® XG-C18LC(5um) 4.6x150mm
 Mobile phase : A) 0.2% Formic acid - Water
 B) 0.2% Formic acid - Acetonitrile
 Flow rate : 1.0ml/min
 Temperature : 40°C
 Detection : UV254nm
 Sample : 1. Puerarin (0.31mg/mL)
 2. Daidzin (0.31mg/mL)
 3. Daidzein (0.33mg/mL)
 4. Biochamin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

To unknown possibility —

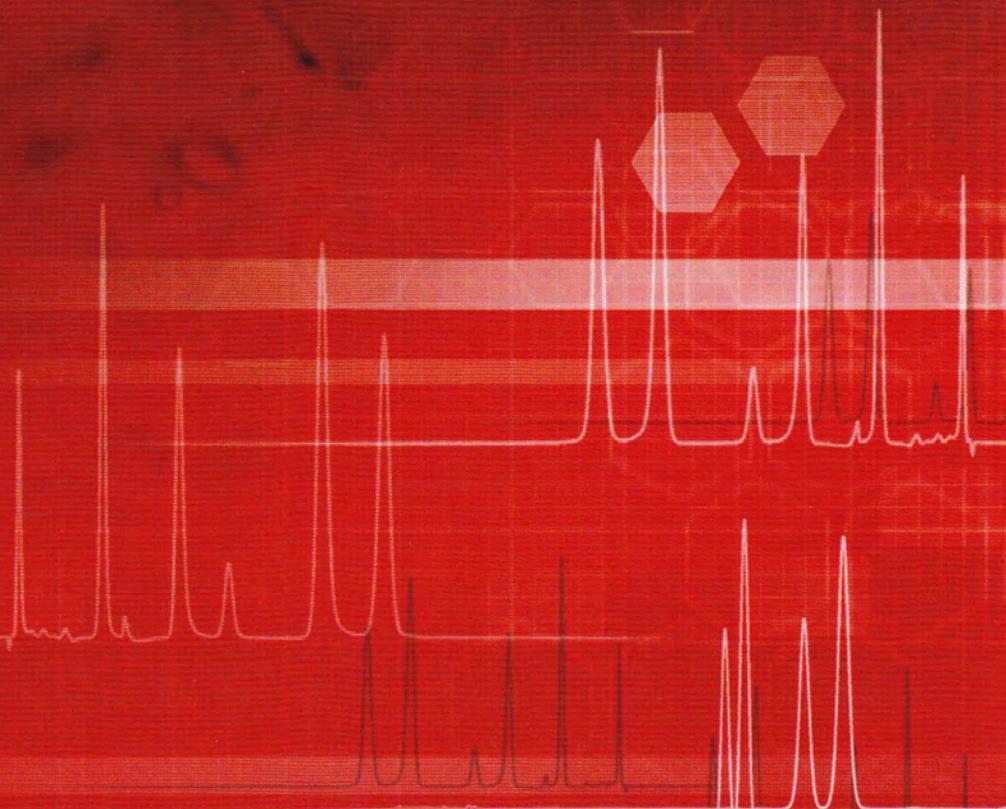
for Liquid Chromatography

Develosil™ XG-C30

for Liquid Chromatography

NOMURA CHEMICAL CO., LTD.

Develosil™



for Liquid Chromatography

Develosil™ XG-C30

It is new series release from Develosil™. Evolution of our product C30.
Please realize it!!

1 Specifications

Develosil™ XG-C30

● Silica base

This product uses a Silicagel with a few impurities.

● The column which it is easy to use

As for this column, equilibrium is early and the pressure is low, too

● Stability

Develosil keeps high stability to undertake all processes in own company.

● To another one step ahead

As for this product, a pH range is wider than the conventional product.

Characteristic of Develosil™ XG-C30

Surface area	300m ² /g
Pore diameter	14nm
Pore volume	1.10mL/g
Ligand	Triacetyl (Mono)
Carbon content	19.50%
Endcapping	○
pH range	pH1.5-8

2 Product inspection of Develosil™ XG-C30

Develosil™ XG-C30

Develosil™ XG-C30 performs product inspection of five items.

I check the performance evaluation of each item and the unevenness of the gel lot.

1. Hydrogen bonding capacity · Hydrophobicity · Surface polarity

Conditions :

Column : Develosil™ XG-C30M (5μm)

Size : 4.6x150mm

Mobile Phase : MeOH/Water=70/30

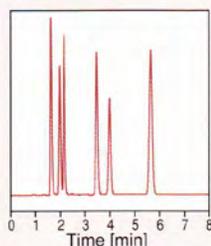
Flow rate : 1.0ml/min

Temperature : 40°C

Sample : 1.Uracil / 2.Caffeine / 3.Phenol

4.Methyl benzoate

5.Benzene / 6.Toluene



2. Steric selectivity

Conditions :

Column : Develosil™ XG-C30M (5μm)

Size : 4.6x150mm

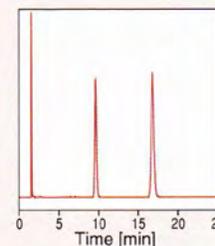
Mobile Phase : MeOH/Water=80/20

Flow rate : 1.0ml/min

Temperature : 40°C

Sample : 1.Uracil / 2.o-Terphenyl

3.Triphenylene



3. Basic compounds

Conditions :

Column : Develosil™ XG-C30M (5μm)

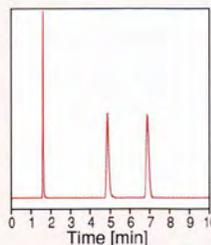
Size : 4.6x150mm

Mobile Phase : ACN/50mM Ammonium Acetate (pH7) =20/80

Flow rate : 1.0ml/min

Temperature : 40°C

Sample : 1.Uracil / 2.Pyridine / 3.Phenol



4. Coordinate compounds

Conditions :

Column : Develosil™ XG-C30M (5μm)

Size : 4.6x150mm

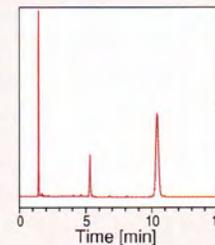
Mobile Phase : ACN/0.2%Phosphoric acid=60/40

Flow rate : 1.0ml/min

Temperature : 40°C

Sample : 1.Uracil / 2.Toluene

3.Quinizarine



5. Acidic compounds

Conditions :

Column : Develosil™ XG-C30M (5μm)

Size : 4.6x150mm

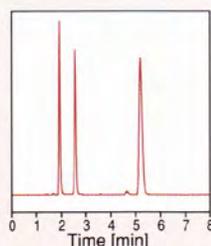
Mobile Phase : ACN/0.2%Phosphoric acid=2/98

Flow rate : 1.0ml/min

Temperature : 40°C

Sample : 1.Formic acid / 2.Acetic acid

3.Propionic acid



Each properties of matter are calculated by the following methods.

● Hydrogen bonding capacity
 $\alpha = k'(\text{Caffeine}) / k'(\text{Phenol})$

● Hydrophobicity
 $\alpha = k'(\text{Toluene}) / k'(\text{Benzene})$

● Surface polarity
 $\alpha = k'(\text{Methyl Benzoate}) / k'(\text{Toluene})$

● Steric selectivity
 $\alpha = k'(\text{Triphenylene}) / k'(\text{o-Terphenyl})$

● Basic compounds
 $\alpha = k'(\text{Pyridine}) / k'(\text{Phenol})$

● Coordinate compounds
 $\alpha = k'(\text{Quinizarine}) / k'(\text{Toluene})$

● Acidic compounds
 $\alpha = k'(\text{Formic acid}) / k'(\text{Acetic acid})$

We ship only the filler which cleared severe inspection of above five items as a product.

3 Positioning of Develosil™ XG-C30

Develosil™ XG-C30

Fig.1 Hydrogen bonding capacity - Surface polarity

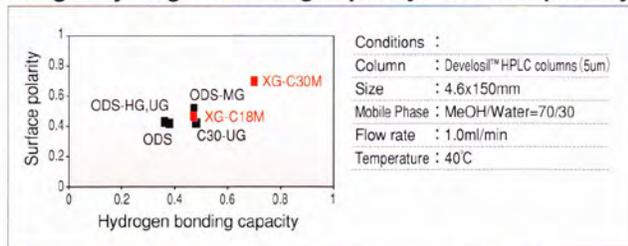
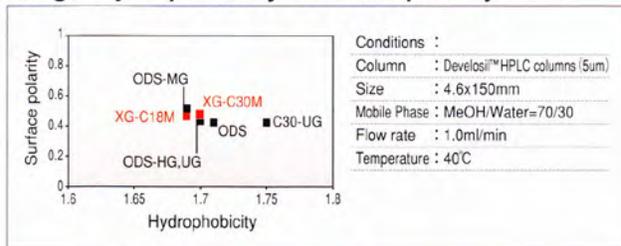


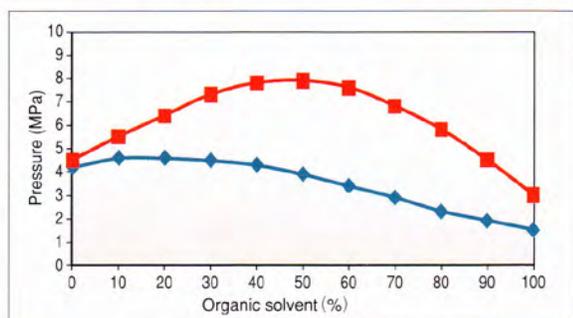
Fig.2 Hydrophobicity - Surface polarity



Develosil™ XG-C30M has a strong hydrogen bonding capacity. And show Develosil™ ODS-HG and UG equal hydrophobicity.

4 Column pressure of Develosil™ XG-C30M

Develosil™ XG-C30

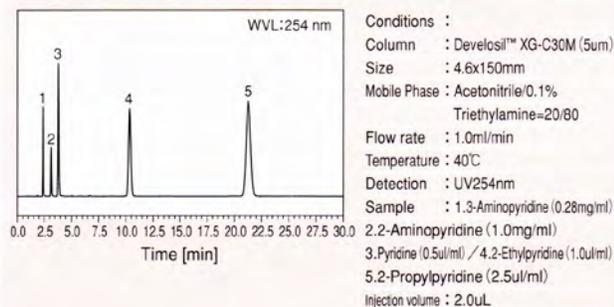


A shows low pressure in the series. Because column pressure is low, this column can change mobile phase widely.

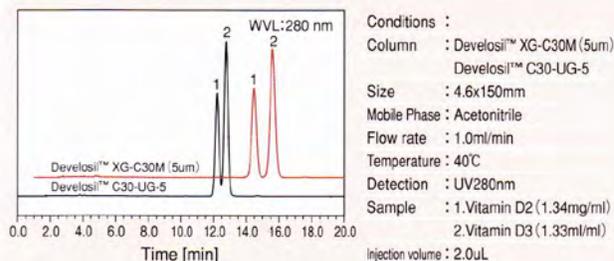
5 Column pressure of Develosil™ XG-C30M

Develosil™ XG-C30

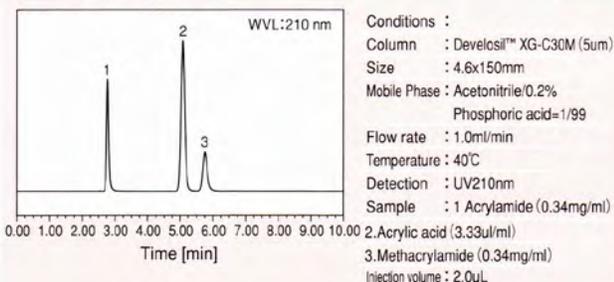
1. Analysis of Pyridine



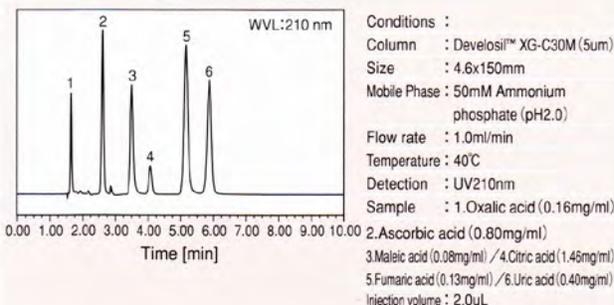
2. Analysis of Vitamin D2 and D3



3. Analysis of Acrylamide, Acrylic acid and Methacrylamide



4. Analysis of Acidic compounds



The packed column for HPLC

Develosil XG-CN

The 3rd phase "XG-CN" of Develosil XG series

Improvement point : The durability over acetonitrile was improved sharply.

1. The trait of Develosil XG-CN

Silica base

This product modify the cyanopropyl group based on a high grade silica gel.

The column which it is easy to use

As for this column, equilibrium is early and the pressure is low, too.

In addition, even a normal phase is available in the reverse phase.

Stability

Develosil keeps high stability to undertake all processes in own company.

Use solvent

Compared with the conventional CN column, the durability over acetonitrile improves considerably.

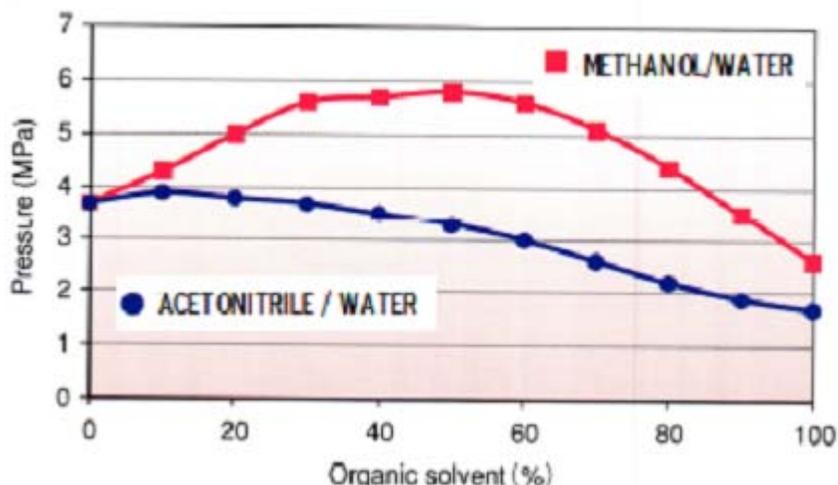
In addition, I do not choose the kind of the solvent.

Characteristic of Develosil XG-CN

Surface area	300 m ² /g
Pore diameter	14nm
Pore volume	1.10 mL/g
Ligand	Cyanopropyl
Carbon content	7.50%
Endcapping	○
pH range	pH 1.5 - 8

2. Performance of Develosil XG-CN

◆ Organic solvent composition and a pressure



Conditions;

Column	Develosil XG-Cn (5um)
Size	I.D. 4.6 x 150 mm
Mobile Phase	CAN / Water (●) MeOH / Water (■)
Flow rate	1.0 ml/min
Temperature	40°C

Develosil XG series shows low pressure conventionally. This became an ease of use column. The flow rate of the above terms can be raised and used. And, a solvent with high viscosity can also be used.

◆ Use by acetonitrile is possible

In the conventional CN column, the specification of acetonitrile had restriction. In Develosil XG-CN, the durability over acetonitrile is improving greatly. I can thereby use it without a problem.

Difference

Develosil CN-UG

Time of shipment
Performance test

MeOH / Water



Develosil XG-CN

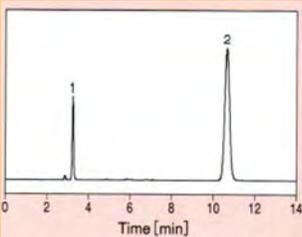
Time of shipment
Performance test

ACN / Water

The MeOH system was used for the performance test at the time of shipment until now. But in Develosil XG-CN, the performance test is done with the solvent of an ACN system.

3. Develosil XG-CN performance evaluation

Performance evaluation of time of shipment.

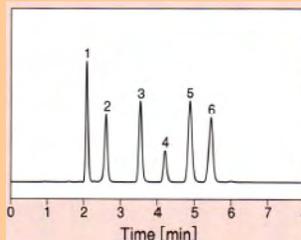


Conditions:
 Column : Develosil® XG-CN (5µm)
 Size : 4.6x150mm
 Mobile Phase : ACN/Water=50/50
 Flow rate : 1.0ml/min
 Temperature : 30°C
 Detection : UV254nm
 Sample : 1. Benzene
 2. 1,3,5 Triphenyl benzene

※Time of shipment solvent
 ACN / Water = 50 / 50

Time of shipment performance test is evaluated in an ACN system.
 Only the column which passed the basis is shipped.

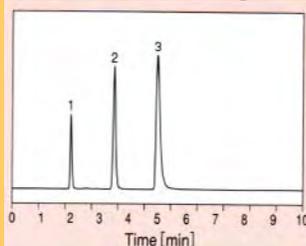
Hydrogen bonding capacity • Hydrophobicity • Surface polarity



Conditions:
 Column : Develosil® XG-CN (5µm)
 Size : 150x4.6mm
 Mobile Phase : CH₃OH/Water (30:70)
 Flow rate : 1.0ml/min
 Temperature : 40°C
 Detection : UV 254nm
 Sample : 1. Uracil/2. Caffeine
 3. Phenol/4. Benzene
 5. Methyl benzoate/6. Toluene

Hydrogen bonding capacity α"Caffeine/Phenol", hydrophobicity α"Toluene/Benzene", and surface polarity α"Methyl Benzoate/Toluene" are estimation.

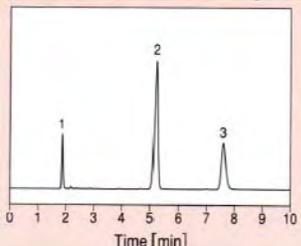
Plane selectivity



Conditions:
 Column : Develosil® XG-CN (5µm)
 Size : 4.6x150mm
 Mobile Phase : MeOH/Water=65/35
 Flow rate : 1.0ml/min
 Temperature : 40°C
 Detection : UV254nm
 Sample : 1. Uracil/2. o-Terphenyl
 3. Triphenylene

Plane selectivity α "Triphenylene/o-Terphenyl" is estimation.

Coordinate compounds

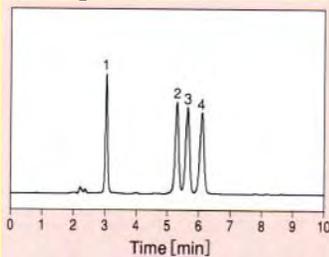


Conditions:
 Column : Develosil XG-C18M (5µm)
 Size : 150x4.6mm
 Mobile Phase : CH₃CN/0.2% H₃PO₄ (35:65)
 Flow rate : 1.0ml/min
 Temperature : 40°C
 Detection : UV254nm
 Sample : 1. Uracil/2. Toluene
 3. Quinizarine

Plane selectivity α "Quinizarine/Toluene" is estimation.

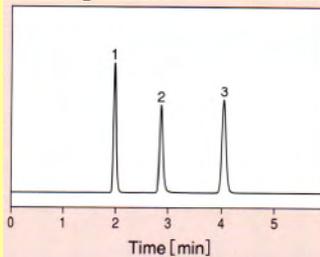
4. Application data

Analysis of steroid



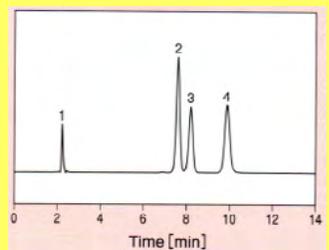
Conditions:
 Column : Develosil® XG-CN (5µm)
 Size : 4.6x150mm
 Mobile Phase : ACN/Water=35/65
 Flow rate : 1.0ml/min
 Temperature : 40°C
 Detection : UV210nm
 Sample : 1. Estriol (0.13mg/ml)
 2. β-Estradiol (0.13mg/ml)
 3. 17α-Estradiol (0.13mg/ml)
 4. Estrone (0.13mg/ml)
 Injection volume : 3.0µL

Analysis of a base compound



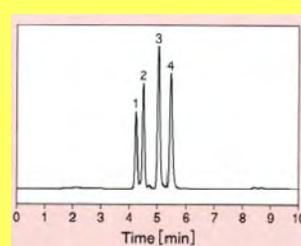
Conditions:
 Column : Develosil XG-C18M (5µm)
 Size : 150x4.6mm
 Mobile Phase : CH₃CN/50mM Ammonium Acetate (pH7.0) (20/80)
 Flow rate : 1.0ml/min
 Temperature : 40°C
 Detection : UV254nm
 Sample : 1. Uracil (0.08mg/ml)
 2. Pyridine (0.13mg/ml)
 3. Phenol (0.21mg/ml)

Analysis of Acidic compounds



Conditions:
 Column : Develosil® XG-CN (5µm)
 Size : 4.6x150mm
 Mobile Phase : ACN/0.2% Phosphoric acid=2/98
 Flow rate : 1.0ml/min
 Temperature : 40°C
 Detection : UV254nm
 Sample : 1. Ascorbic acid (0.02mg/ml)
 2. Benzoic acid (0.16mg/ml)
 3. Acetylsalicylic acid (0.16mg/ml)
 4. Salicylic acid (0.16mg/ml)
 Injection volume : 2.0µL

The example of analysis using normal phases system solvent



Conditions:
 Column : Develosil® XG-CN (5µm)
 Size : 4.6x150mm
 Mobile Phase : Heptane
 Flow rate : 1.0ml/min
 Temperature : 30°C
 Detection : UV254nm
 Sample : 1. Anthracene (0.03mg/ml)
 2. Pyrene (0.51mg/ml)
 3. Chrysene (0.26mg/ml)
 4. Benzo [a] Pyrene (0.26mg/ml)
 Injection volume : 10µL

Use by a normal phases can be performed also in Develosil XG-CN.
 Specification of a "reversed phase" and a "normal phases" is possible at the time of an order.



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