

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

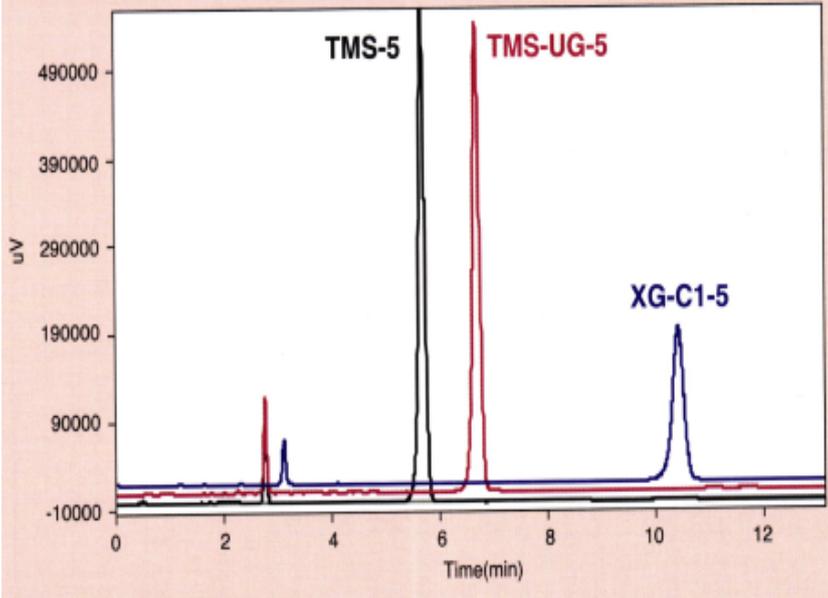
Surface area	450 m <sup>2</sup> /g
Pore diameter	10 nm
Pore volume	1.15 mL/g
Ligand	Trimethyl
Carbon content	7.50%
Endcapping	○
pH range	pH 1.5 - 8
Use upper limit pressure	20 Mpa
Use maximum temperature	50 °C

## 2. The trait of Develosil XG-CN

Product Name	Surface area (m <sup>2</sup> /g)	Pore diameter(nm)	Pore capacity (mg/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.

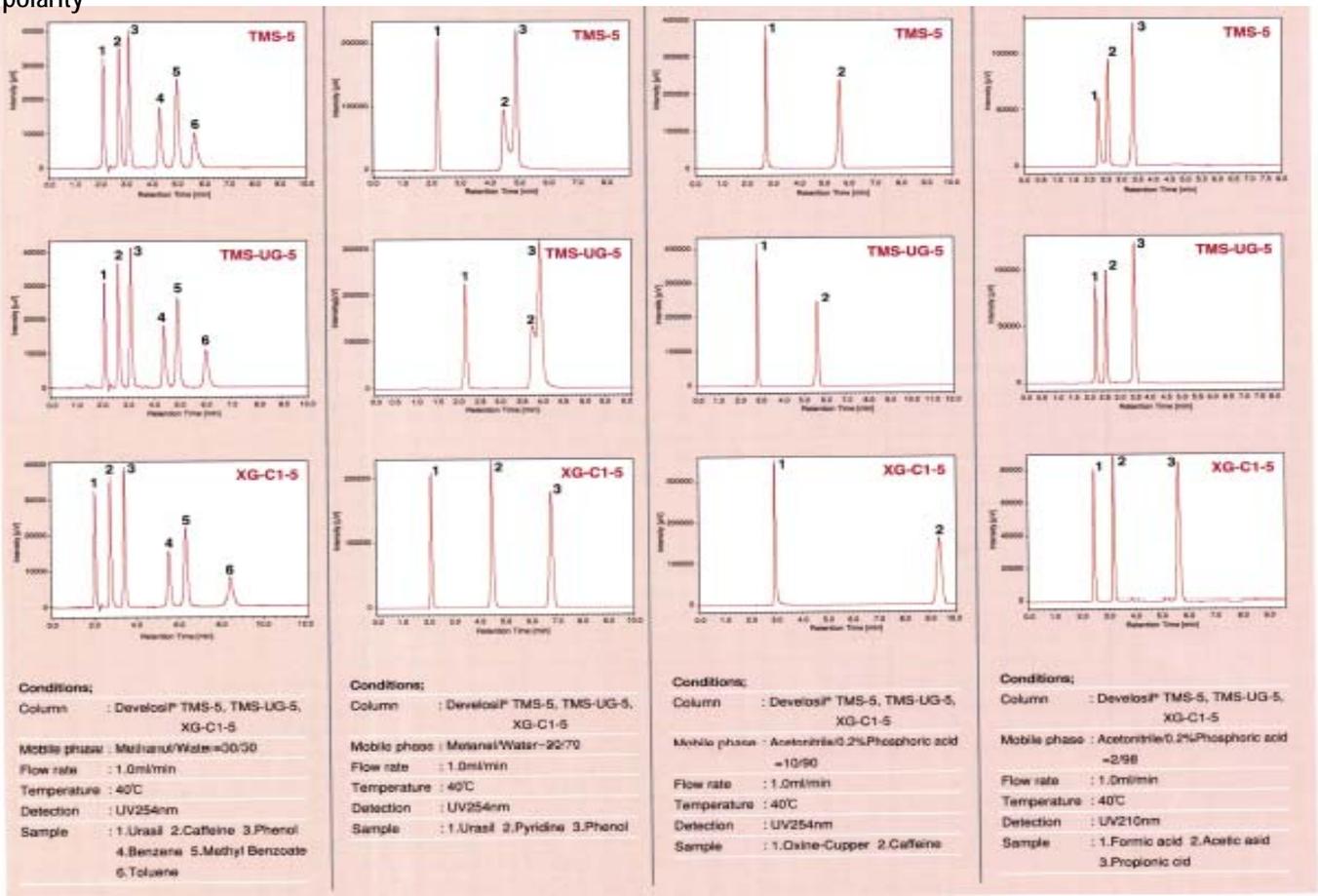
# 4. Separation characteristics by C1 modification type Packing material

Hydrogen bonding capacity, hydrophobicity, surface polarity

Basic compound

Metal coordination property

Acidic compound

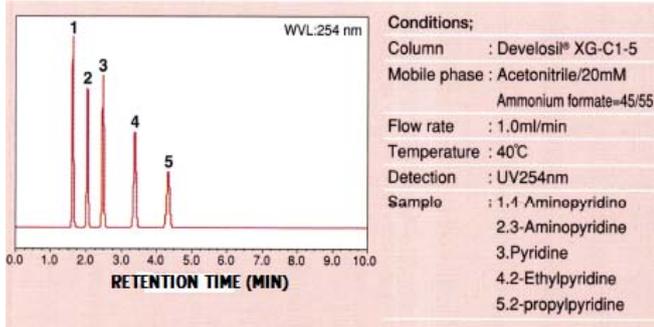


Develosil XG-C1 shows good separation as compared with C1 conventional column. In separation of a "basic compound", what was insufficiency of separation is separated finely, and the peak shape of pyridine is also sharp. And, the very good result is shown also in separation of an "acidic compound", and 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.

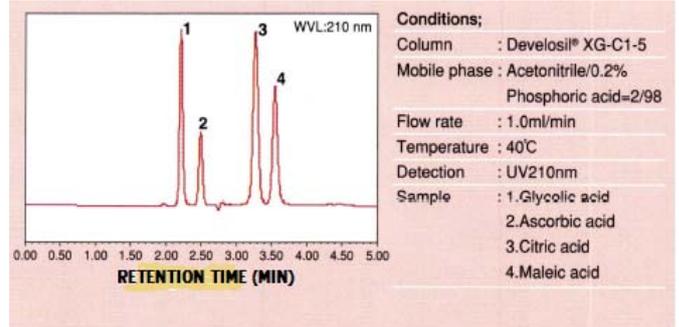
# 5. Application

## 1. Analysis of a pyridine derivative



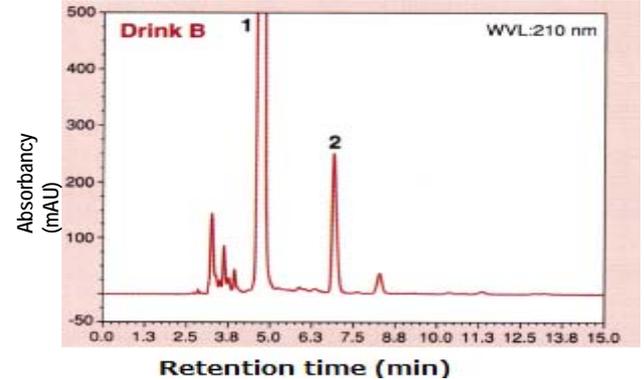
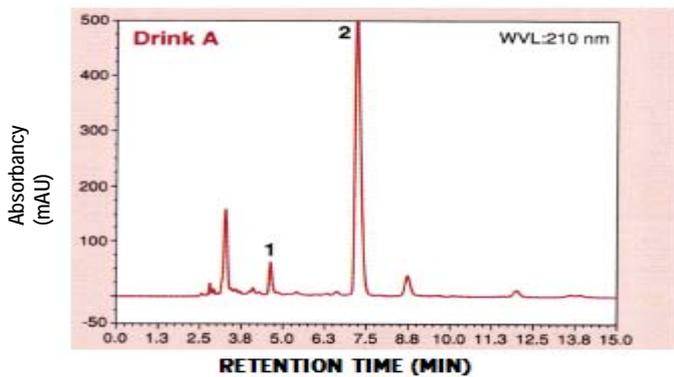
Form also with sharp pyridine represented by the basic compound

## 2. Analysis of an organic acid



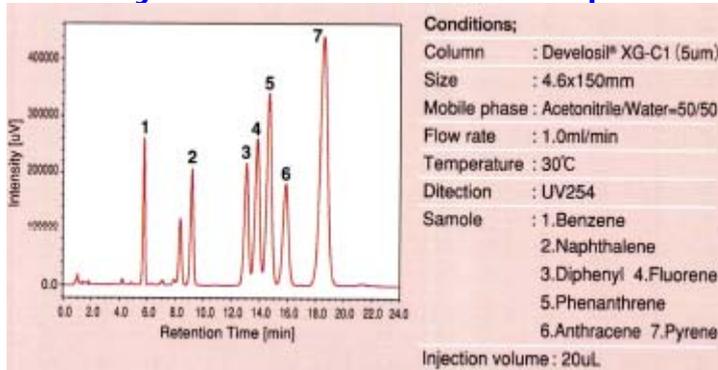
In C18, the organic acid which is hard to separate can also be divided finely.

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



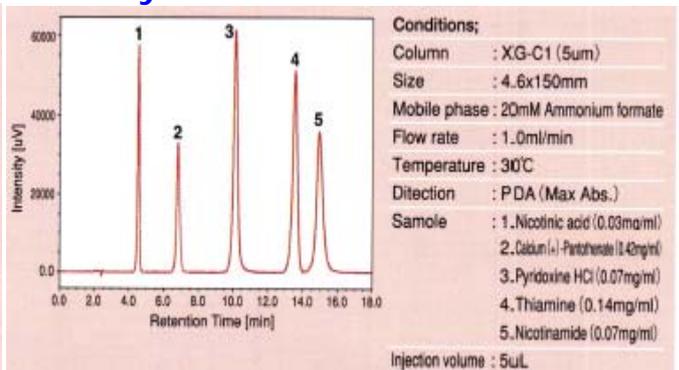
Ascorbic acid and citric acid contained in two sorts of commercial item drinks were analyzed.

## 4. Analysis of an aromatic compound



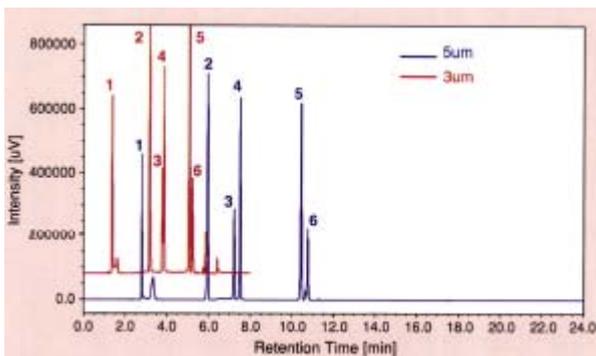
Analysis of various aromatic compounds is possible. All the degrees of separation attain above one.

## 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



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

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

## 6. Price List

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

### Convention columns

#### ■ Conventional columns

Packing name	Column Size	Particle Size	P/N	Price (yen)
XG-C1	I.D. 4.6 x 35mm	3	XGC1346035W	31,000
	I.D. 4.6 x 50mm		XGC1346050W	33,000
	I.D. 4.6 x 75mm		XGC1346075W	39,500
	I.D. 4.6 x 100mm		XGC1346100W	46,000
	I.D. 4.6 x 150mm		XGC1346150W	51,000
	I.D. 4.6 x 250mm		XGC1346250W	65,000
	I.D. 4.6 x 35mm	5	XGC1546035W	28,000
	I.D. 4.6 x 50mm		XGC1546050W	30,000
	I.D. 4.6 x 75mm		XGC1546075W	36,500
	I.D. 4.6 x 100mm		XGC1546100W	43,000
	I.D. 4.6 x 150mm		XGC1546150W	48,000
	I.D. 4.6 x 250mm		XGC1546250W	60,000

#### ● Guard column for conventional

Product name	P/N	Price (yen)
Guard cartridge (4pieces) 4.0x10mm	XGC1540010C	18,000
Guard cartridge Holder 4.0x10mm	HO00040010C	9,500
Guard cartridge set ※	XGC1540010W	14,000
※Guard cartridge set = Holder (1piece) + cartridge 4.0x10mm (1piece)		

### Semi-micro columns

#### ■ Semi-micro columns

Packing name	Column Size	Particle Size	P/N	Price (yen)
XG-C1	I.D. 2.0 x 35mm	3	XGC1320035W	31,000
	I.D. 2.0 x 50mm		XGC1320050W	33,000
	I.D. 2.0 x 75mm		XGC1320075W	39,500
	I.D. 2.0 x 100mm		XGC1320100W	46,000
	I.D. 2.0 x 150mm		XGC1320150W	51,000
	I.D. 2.0 x 250mm		XGC1320250W	65,000
	I.D. 2.0 x 35mm	5	XGC1520035W	28,000
	I.D. 2.0 x 50mm		XGC1520050W	30,000
	I.D. 2.0 x 75mm		XGC1520075W	36,500
	I.D. 2.0 x 100mm		XGC1520100W	43,000
	I.D. 2.0 x 150mm		XGC1520150W	48,000
	I.D. 2.0 x 250mm		XGC1520250W	60,000

#### ● Guard column for Semi-micro

Product name	P/N	Price (yen)
Guard cartridge (4pieces) 1.5x10mm	XGC1515010C	20,000
Guard cartridge Holder 1.5x10mm	HO00015010C	15,000
Guard cartridge set ※	XGC1515010W	20,000
※Guard cartridge set = Holder (1piece) + cartridge 4.0x10mm (1piece)		

### Prep columns

#### ■ Prep columns

Packing name	Column Size	Particle Size	P/N	Price (yen)
XG-C1	I.D. 10.0 x 150mm	5	XGC15P1150W	120,000
	I.D. 10.0 x 250mm		XGC15P1250W	140,000
	I.D. 20.0 x 150mm		XGC15P2150W	245,000
	I.D. 20.0 x 150mm		XGC15P2250W	300,000

#### ● Prep guard column

Packing name	Column Size	Particle Size	P/N	Price (yen)
XG-C1	I.D. 8.0 x 10mm	5	XGC1580010W	20,000
	(for I.D. 10.0mm)			
	I.D. 20.0 x 50mm		XGC15P2050W	115,000
	(for I.D. 20.0mm)			