

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.

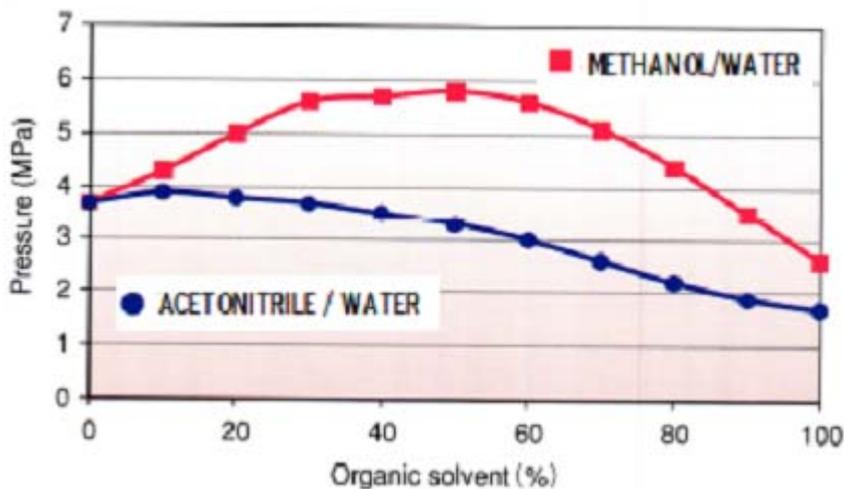
In addition, I do not choose the kind of the solvent.

### Characteristic of Develosil XG-CN

Surface area	300 m <sup>2</sup> /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

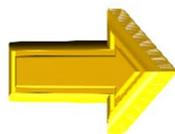
In the conventional CN column, the specification of acetonitrile had restriction. In Develosil XG-CN, the durability over acetonitrile is improving greatly. I can thereby use it without a problem.

#### Difference

#### Develosil CN-UG

Time of shipment  
Performance test

MeOH / Water



#### Develosil XG-CN

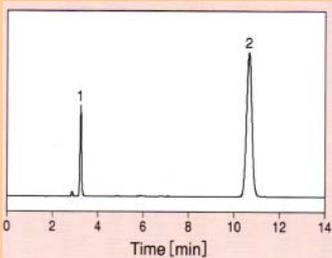
Time of shipment  
Performance test

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.

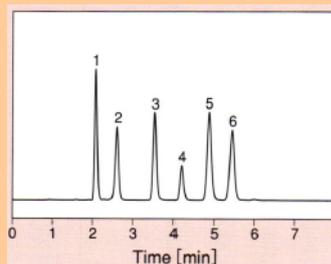


Conditions;  
 Column : Develosil® XG-CN (5um)  
 Size : 4.6x150mm  
 Mobile Phase : ACN/Water=50/50  
 Flow rate : 1.0ml/min  
 Temperature : 30°C  
 Detection : UV254nm  
 Sample : 1. Benzene  
 2. 1,3,5 Triphenyl benzene

※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.

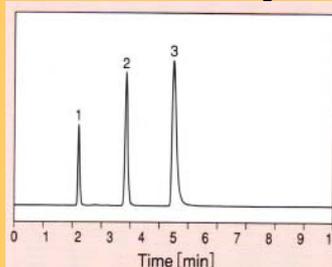
## Hydrogen bonding capacity • Hydrophobicity • Surface polarity



Conditions;  
 Column : Develosil® XG-CN (5um)  
 Size : 150x4.6mm  
 Mobile Phase : CH<sub>3</sub>OH/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.

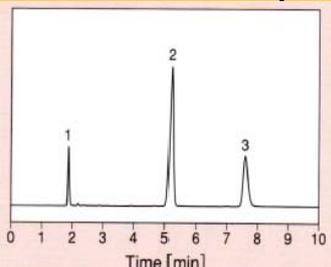
## Plane selectivity



Conditions;  
 Column : Develosil® XG-CN (5um)  
 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

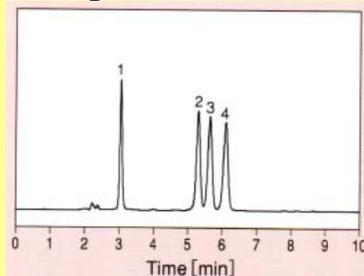


Conditions;  
 Column : Develosil XG-C18M (5um)  
 Size : 150x4.6mm  
 Mobile Phase : CH<sub>3</sub>CN/0.2% H<sub>3</sub>PO<sub>4</sub> (35:65)  
 Flow rate : 1.0ml/min  
 Temperature : 40°C  
 Detection : UV254nm  
 Sample : 1. Uracil/2. Toluene  
 3. Quinizarine

Plane selectivity α "Quinizarine/Toluene" is estimation.

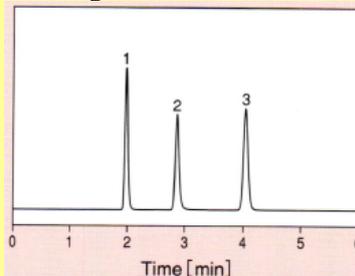
# 4. Application data

## Analysis of steroid



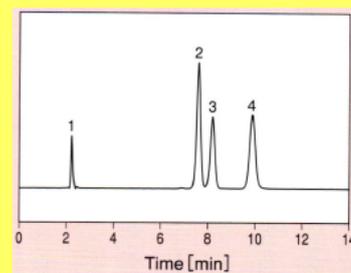
Conditions;  
 Column : Develosil® XG-CN (5um)  
 Size : 4.6x150mm  
 Mobile Phase : ACN/Water=35/65  
 Flow rate : 1.0ml/min  
 Temperature : 40°C  
 Detection : UV210nm  
 Sample : 1. Estriol (0.13mg/ml)  
 2. β-Estradiol (0.13mg/ml)  
 3. 17α-Estradiol (0.13mg/ml)  
 4. Estrone (0.13mg/ml)  
 Injection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

## Analysis of a base compound



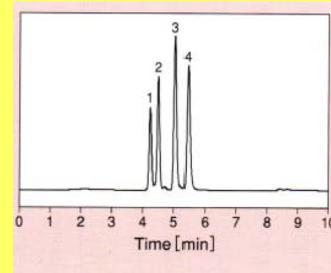
Conditions;  
 Column : Develosil XG-C18M (5um)  
 Size : 150x4.6mm  
 Mobile Phase : CH<sub>3</sub>CN/50mM Ammonium Acetate (pH7.0) (20/80)  
 Flow rate : 1.0ml/min  
 Temperature : 40°C  
 Detection : UV254nm  
 Sample : 1. Uracil (0.08mg/ml)  
 2. Pyridine (0.13mg/ml)  
 3. Phenol (0.21mg/ml)

## Analysis of Acidic compounds



Conditions;  
 Column : Develosil® XG-CN (5um)  
 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 : 2.0uL

## The example of analysis using normal phases system solvent



Conditions;  
 Column : Develosil® XG-CN (5um)  
 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 : 10uL

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.

# 5. Price List

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

## Convention columns

### ■ Conventional columns **【Reversed phase】**

Packing name	Column Size	Particle size	P/N	Price (yen)
XG-CN	I.D. 4.6x35mm	3	XGCN346035W	38,000
	I.D. 4.6x50mm		XGCN346050W	38,000
	I.D. 4.6x75mm		XGCN346075W	43,000
	I.D. 4.6x100mm		XGCN346100W	48,000
	I.D. 4.6x150mm		XGCN346150W	58,000
	I.D. 4.6x250mm		XGCN346250W	68,000
	I.D. 4.6x35mm	5	XGCN546035W	35,000
	I.D. 4.6x50mm		XGCN546050W	35,000
	I.D. 4.6x75mm		XGCN546075W	40,000
	I.D. 4.6x100mm		XGCN546100W	45,000
	I.D. 4.6x150mm		XGCN546150W	55,000
	I.D. 4.6x250mm		XGCN546250W	65,000

### ● Guard column for conventional

#### **【Reversed phase】**

Packing name	P/N	Price (yen)
Guard cartridge(4pieces) 4.0x10mm	XGCN540010C	18,000
Holder 4.0x10mm	HO00040010C	9,500
Guard cartridge set ※	XGCN540010W	14,000

※ Guard cartridge set = Holder (1piece) + cartridge 4.0x10mm (1piece)

### ◆ Conventional columns **【Normal phase】**

Packing name	Column Size	Particle size	P/N	Price (yen)
XG-CN	I.D. 4.6x35mm	3	XGCN346035WN	38,000
	I.D. 4.6x50mm		XGCN346050WN	38,000
	I.D. 4.6x75mm		XGCN346075WN	43,000
	I.D. 4.6x100mm		XGCN346100WN	48,000
	I.D. 4.6x150mm		XGCN346150WN	58,000
	I.D. 4.6x250mm		XGCN346250WN	68,000
	I.D. 4.6x35mm	5	XGCN546035WN	35,000
	I.D. 4.6x50mm		XGCN546050WN	35,000
	I.D. 4.6x75mm		XGCN546075WN	40,000
	I.D. 4.6x100mm		XGCN546100WN	45,000
	I.D. 4.6x150mm		XGCN546150WN	55,000
	I.D. 4.6x250mm		XGCN546250WN	65,000

### ● Guard column for conventional

#### **【Normal phase】**

Packing name	P/N	Price (yen)
Guard cartridge(4pieces) 4.0x10mm	XGCN540010CN	18,000
Holder 4.0x10mm	HO00040010C	9,500
Guard cartridge set ※	XGCN540010WN	14,000

※ Guard cartridge set = Holder (1piece) + cartridge 4.0x10mm (1piece)

## Semi-micro columns

### ■ Semi-micro columns **【Reversed phase】**

Packing name	Column Size	Particle size	P/N	Price (yen)
XG-CN	I.D. 2.0x35mm	3	XGCN320035W	38,000
	I.D. 2.0x50mm		XGCN320050W	38,000
	I.D. 2.0x75mm		XGCN320075W	43,000
	I.D. 2.0x100mm		XGCN320100W	48,000
	I.D. 2.0x150mm		XGCN320150W	58,000
	I.D. 2.0x250mm		XGCN320250W	68,000
	I.D. 2.0x35mm	5	XGCN520035W	35,000
	I.D. 2.0x50mm		XGCN520050W	35,000
	I.D. 2.0x75mm		XGCN520075W	40,000
	I.D. 2.0x100mm		XGCN520100W	45,000
	I.D. 2.0x150mm		XGCN520150W	55,000
	I.D. 2.0x250mm		XGCN520250W	65,000

### ● Guard column for Semi-micro

#### **【Reversed phase】**

Packing name	P/N	Price (yen)
Guard cartridge(4pieces) 1.5x10mm	XGCN515010CN	20,000
Holder 1.5x10mm	HO00015010C	15,000
Guard cartridge set ※	XGCN515010WN	20,000

※ Guard cartridge set = Holder (1piece) + cartridge 1.5x10mm (1piece)

### ◆ Semi-micro columns **【Normal phase】**

Packing name	Column Size	Particle size	P/N	Price (yen)
XG-CN	I.D. 2.0x35mm	3	XGCN320035WN	38,000
	I.D. 2.0x50mm		XGCN320050WN	38,000
	I.D. 2.0x75mm		XGCN320075WN	43,000
	I.D. 2.0x100mm		XGCN320100WN	48,000
	I.D. 2.0x150mm		XGCN320150WN	58,000
	I.D. 2.0x250mm		XGCN320250WN	68,000
	I.D. 2.0x35mm	5	XGCN520035WN	35,000
	I.D. 2.0x50mm		XGCN520050WN	35,000
	I.D. 2.0x75mm		XGCN520075WN	40,000
	I.D. 2.0x100mm		XGCN520100WN	45,000
	I.D. 2.0x150mm		XGCN520150WN	55,000
	I.D. 2.0x250mm		XGCN520250WN	65,000

### ● Guard column for Semi-micro

#### **【Normal phase】**

Packing name	P/N	Price (yen)
Guard cartridge(4pieces) 1.5x10mm	XGCN515010C	20,000
Holder 1.5x10mm	HO00015010C	15,000
Guard cartridge set ※	XGCN515010W	20,000

※ Guard cartridge set = Holder (1piece) + cartridge 1.5x10mm (1piece)

## 5. Price List

### Prep columns

#### ■ Prep columns 【Reversed phase】

Packing name	Column Size	Particle size	P/N	Price (yen)
XG-CN	I.D. 10.0x150mm	5	XGCN5P1150W	130,000
	I.D. 10.0x250mm		XGCN5P1250W	150,000
	I.D. 20.0x150mm		XGCN5P2150W	240,000
	I.D. 20.0x250mm		XGCN5P2250W	275,000

#### ◆ Prep columns 【Normal phase】

Packing name	Column Size	Particle size	P/N	Price (yen)
XG-CN	I.D. 10.0x150mm	5	XGCN5P1150WN	130,000
	I.D. 10.0x250mm		XGCN5P1250WN	150,000
	I.D. 20.0x150mm		XGCN5P2150WN	240,000
	I.D. 20.0x250mm		XGCN5P2250WN	275,000

#### ● Prep guard column 【Reversed phase】

Packing name	Column Size	P/N	Price (yen)
XG-CN	I.D. 8.0x10mm (for I.D. 10.0mm)	XGCN580010W	20,000
	I.D. 20.0x50mm	XGCN5P2050W	105,000
	The above goods are not cartridge type things. It becomes a packing guard column.		

#### ● Prep guard column 【Normal phase】

Packing name	Column Size	P/N	Price (yen)
XG-CN	I.D. 8.0x10mm (for I.D. 10.0mm)	XGCN580010WN	20,000
	I.D. 20.0x50mm	XGCN5P2050WN	105,000
	The above goods are not cartridge type things. It becomes a packing guard column.		

At the time of the order, please appoint it for "a normal phase" or "a reverse phase" which it is.