

Develosil HPLC Column

Develosil **HSR C18**

High **S**electivity, High **S**eparation, **R**evolution

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High Selectivity, High Separation, Revolution



Develosil HSR C18 supports all analyses with high selectivity and high separation performance.

Develosil HSR series is the column of the universal type that incorporates the necessary elements for the separation.

- High selectivity which does not choose the type of compound
- High retention capacity and high separation performance born from our own production silica gel
- High durability due to high density of the functional groups and the end-cap
- Minimization of lot displacement

These features contribute to the routine and method development

Overwhelming retention capacity

Develosil HSR C18 has adopted a silica gel having a large surface area. Thereby it is possible to obtain a high retention. This is that can be added to an organic solvent in conditions that were analyzed in an aqueous rich. And also it leads to the high sensitivity of the LC / MS.

Improvement of pressure resistance

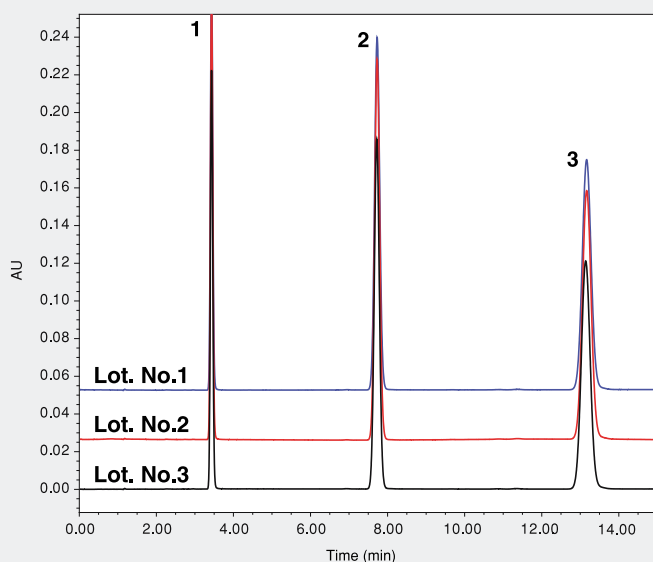
Is often withstand generic analytical column is set to 20 MPa, in Develosil HSR C18 is set to 25 MPa. This will enable sufficient consideration even in high pressure conditions.

Minimization of lot displacement

Develosil HSR C18 are more rigorous quality control because they are manufactured in our company silica gel. In addition, it was eliminate all risks by reducing the working process of the to a greater extent than conventional. At any time to demonstrate the same performance precisely because column that has passed through a rigorous inspection before being shipped from the time of silica gel manufacturing.

Develosil HSR C18 specifications

Silicagel base material	High-purity Silicagel (Spherical)
Surface area	450m ² /g
Pore diameter	80 Å
Pore volume	1.15mL/g
Ligand	Octadecyl (Polymeric)
End-cap	○
Carbon content	22%
USP Column code	L1
pH range	pH1-10
Column withstand pressure	25MPa
Particle size	3, 5μm



Analytical conditions:

Column	: Develosil HSR C18, 5μm (4.6x150mm)
Mobile phase	: Acetonitrile/Water=70/30
Flow rate	: 1.0mL/min
Temperature	: 30°C
Detection	: UV254nm
Sample	: 1. Benzene (0.98mg/mL) 2. Fluorene (1.12mg/mL) 3. Pyrene (1.01mg/mL)
Injection volume	: 2.0μL

Easy method transfer

Analysis example of a local anesthetic by Develosil HSR C18.

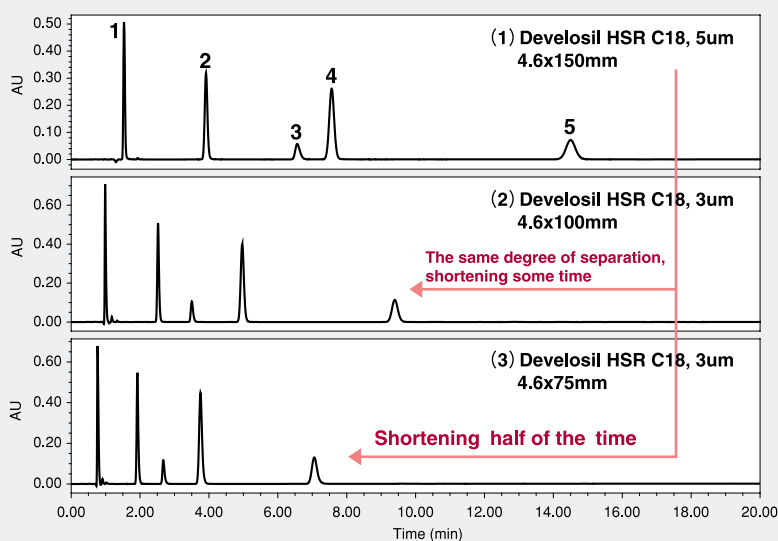
Method transfer of using fine particles, you can get almost the same level of performance by the particle diameter and size of (2). In addition (3) Conditions of it is possible to reduce the analysis time in half.

It also supports high-throughput analysis by the pressure resistance with a savings and margin of solvent by changing the inner diameter.

Proper flow rate to the inner diameter

(4.6mm internal diameter: If the flow rate was 1.0mL/min)

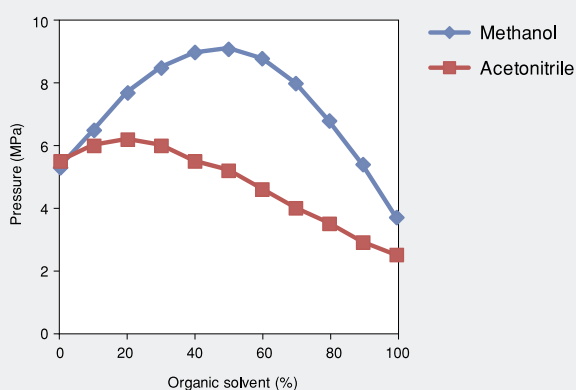
i.d.	Flow rate
2.0mm	0.19mL/min
3.0mm	0.43mL/min
4.6mm	1.0mL/min
6.0mm	1.70mL/min
8.0mm	3.02mL/min
10.0mm	4.73mL/min
20.0mm	18.9mL/min
28.0mm	37.1mL/min



Analytical conditions:

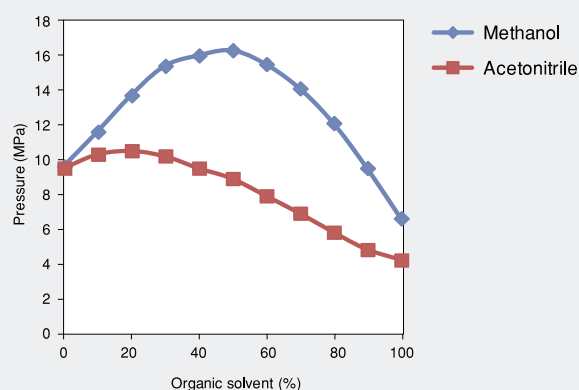
Column	: Develosil HSR C18, 5µm (4.6x150mm)
Mobile phase	: Acetonitrile/25mM (NH ₄) ₂ HPO ₄ , pH7.0=50/50
Flow rate	: 1.0mL/min
Temperature	: 40°C
Detection	: UV210nm
Sample	: 1. Procainamide (0.11mg/mL) 2. Mepivacaine HCl (0.11mg/mL) 3. Tetracaine HCl (0.10mg/mL) 4. Lidocaine (0.12mg/mL) 5. Bupivacaine HCl (0.09mg/mL)
Injection volume	: 5.0µL

Solvent composition and column pressure



Test conditions:

Column	: Develosil HSR C18, 5µm (4.6x150mm)
Mobile phase	: Acetonitrile/water or Methanol/Water
Flow rate	: 1.0mL/min
Temperature	: 40°C



Test conditions:

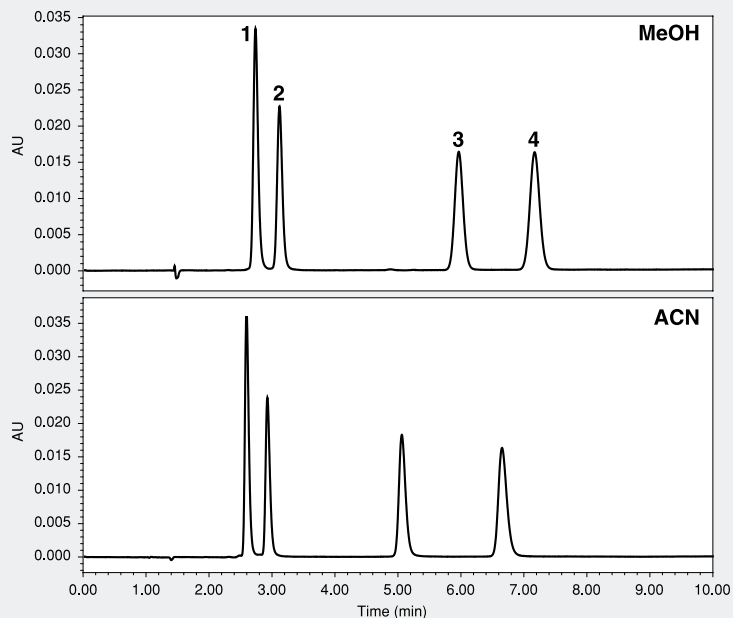
Column	: Develosil HSR C18, 3µm (4.6x150mm)
Mobile phase	: Acetonitrile/water or Methanol/Water
Flow rate	: 1.0mL/min
Temperature	: 40°C

Tough end-cap

Develosil HSR C18 is subjected to its own end cap treatment. The effect is, showed good peak shape regardless of the acidic, basic, it is possible to proceed smoothly in the analysis without feel the stress.

In addition, this tough end cap has a significant effect on column durability.

[Analysis of tricyclic antidepressants]



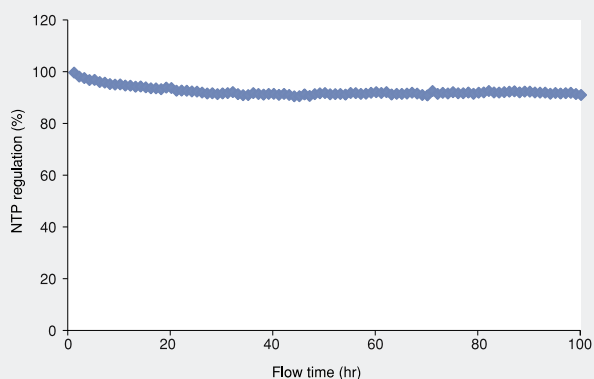
Analytical conditions:

Column	: Develosil HSR C18, 5um (4.6x150mm)
Mobile phase	: Methanol/25mM (NH ₄) ₂ HPO ₄ , pH7.0=80/20 Acetonitrile/25mM (NH ₄) ₂ HPO ₄ , pH7.0=60/40
Flow rate	: 1.0mL/min
Temperature	: 40°C
Detection	: UV254nm
Sample	: 1. Desipramine HCl (64ug/mL) 2. Nortriptyline HCl (52ug/mL) 3. Imipramine HCl (54ug/mL) 4. Amitriptyline HCl (53ug/mL)
Injection volume	: 2.0uL

High selectivity from acidic conditions to alkaline conditions

Develosil HSR C18 can be widely used from acidic mobile phase to alkaline mobile phase by its own synthesis technology and tough end-cap. It maintains high stability even in harsh circumstances, such as method development in continuous analysis and high pH conditions across the day and night.

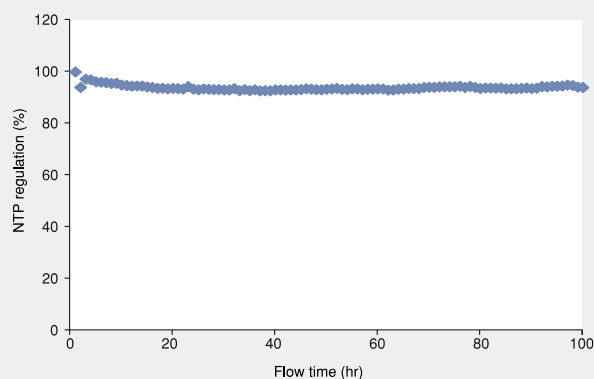
[Acid resistance test]



Analytical conditions:

Column	: Develosil HSC18, 5um (4.6x150mm)
Mobile phase	: Methanol/0.5% TFA, pH1.3=30/70
Flow rate	: 1.0mL/min
Temperature	: 40°C
Detection	: UV260nm
Sample	: Methyl parabene
Injection volume	: 2.0uL

[Alkali resistance test]

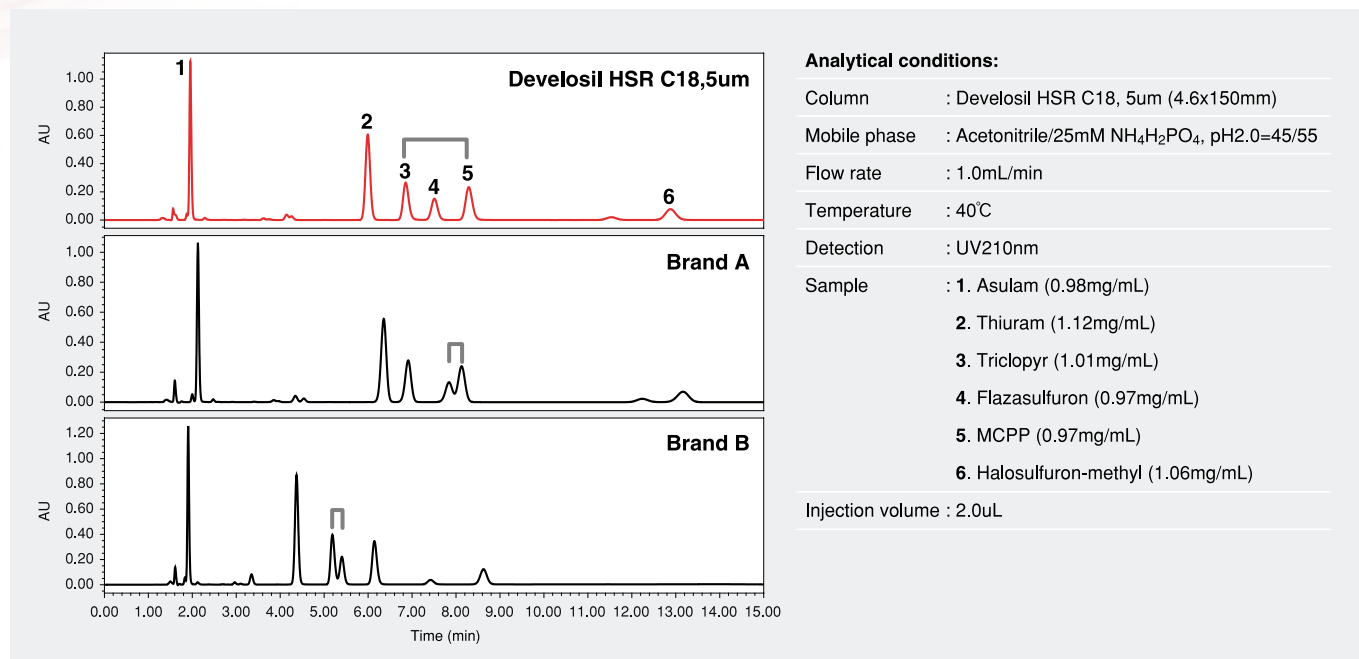


Analytical conditions:

Column	: Develosil HSC18, 5um (4.6x150mm)
Mobile phase	: Methanol/50mM Tris buffer, pH10.4=30/70
Flow rate	: 1.0mL/min
Temperature	: 40°C
Detection	: UV260nm
Sample	: Benzyl alcohol
Injection volume	: 2.0uL

● Separation comparison of golf

Develosil HSR C18 will be can be separated without changing the fully peak which does not separate even conditions from the overwhelming retention capacity.

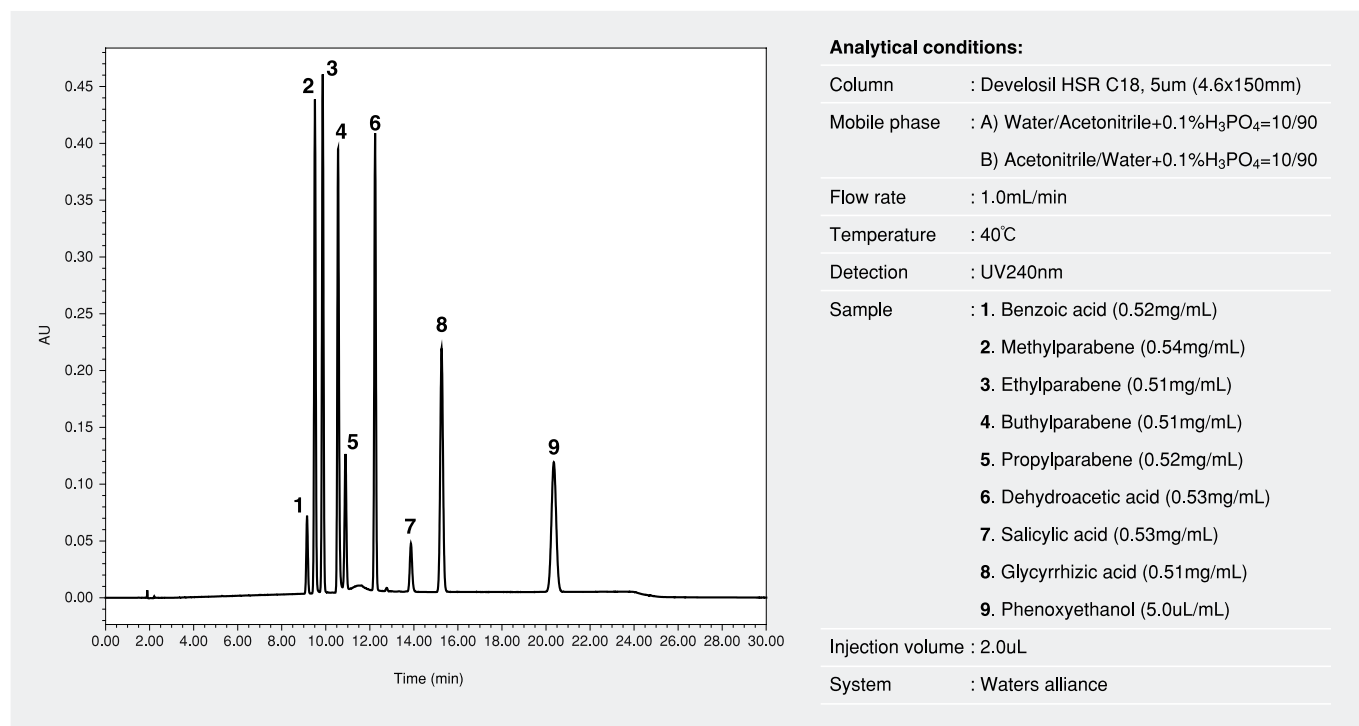


● Gradient analysis of quasi-drugs (fungicide).

Develosil HSR C18 provides a robust results in gradient analysis.

■ Gradient

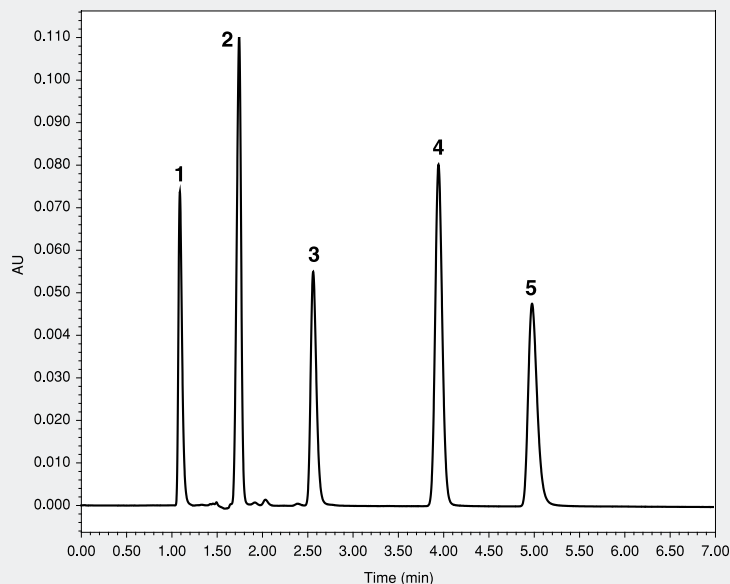
min	A	B	Curve
0	100	0	6
10	60	40	6
22	60	40	6
22.1	100	0	6



Retention of acid and basic compounds at low pH conditions

Basic compounds tend to hold is weak in acidic conditions. Therefore, damage by many become column acidic water-Based composition.

However, Develosil HSR was replete with durability C18 can be more stable reproducible analysis in isocratic and Gradient condition.

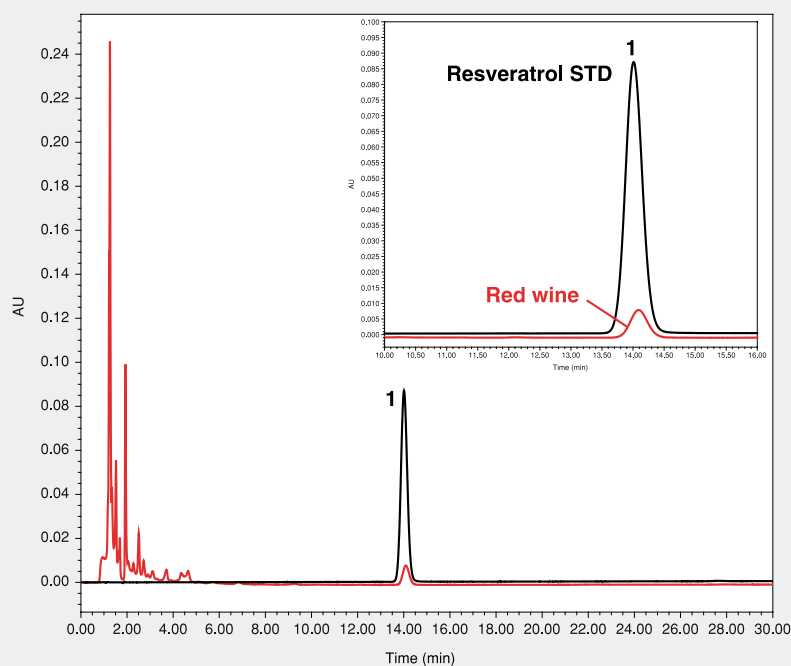


Analytical conditions:

Column	: Develosil HSR C18, 5um (4.6x150mm)
Mobile phase	: Acetonitrile/0.2% H ₃ PO ₄ , pH1.8=35/65
Flow rate	: 1.0mL/min
Temperature	: 40°C
Detection	: UV254nm
Sample	: 1. Cytosine (57ug/mL) 2. 4'-Hydroxyacetaniline (54ug/mL) 3. Berberine HCl (49ug/mL) 4. Benzoic acid (0.62mg/mL) 5. Salicylic acid (0.62mg/mL)
Injection volume	: 2.0uL

Resveratrol in red wine

Develosil HSR C18 has been developed on the theme of following. This column can be used widely in all areas.



Analytical conditions:

Column	: Develosil HSR C18, 5um (4.6x150mm)
Mobile phase	: Acetonitrile/Water=20/80
Flow rate	: 1.0mL/min
Temperature	: 40°C
Detection	: UV310nm
Sample	: 1. Resveratrol (58ug/mL)
Injection volume	: STD/5.0uL Red wine/10uL

※ Red wine was filtered through a 0.45um filter.

A new revolution in Develosil HSR C18!

Develosil HSR C18

Part number	Product name	Particle size (um)	Category	i.d. (mm)	Length (mm)
72-320050W	HSR C18, 3um	3	Semi-micro	2.0	50
72-320075W				2.0	75
72-320100W				2.0	100
72-320150W				2.0	150
72-320250W				2.0	250
72-520050W	HSR C18, 5um	5	Semi-micro	2.0	50
72-520100W				2.0	100
72-520150W				2.0	150
72-520250W				2.0	250
72-346050W	HSR C18, 3um	3	Analytical	4.6	50
72-346075W				4.6	75
72-346100W				4.6	100
72-346150W				4.6	150
72-346250W				4.6	250
72-546050W	HSR C18, 5um	5	Analytical	4.6	50
72-546100W				4.6	100
72-546150W				4.6	150
72-546250W				4.6	250
72-560250W				6.0	250
72-580250W		5	Semi-prep	8.0	250
72-5P1250W				10.0	250
72-5P2250W			Prep	20.0	250

Develosil HSR C18 Guard column

Part number	Product name	Particle size (um)	Category	i.d. (mm)	Length (mm)
HO00015010C	Guard cartridge holder for semi-micro		Holder for the guard cartridge (for semi-micro)	1.5	10
HO00040010C	Guard cartridge holder for analytical		Holder for the guard cartridge (for analytical)	4.0	10
72-515010W	HSR C18-S guard column	5	Guard column/Cartridge type (for semi-micro)	1.5	10
72-515010C	HSR C18-S guard cartridge 【4 pieces】	5	Exchange cartridge/Cartridge type for (semi-micro)	1.5	10
72-540010W	HSR C18 guard column	5	Guard column/Cartridge type (for analytical)	4.0	10
72-540010C	HSR C18 guard cartridge 【4 pieces】	5	Exchange cartridge/Cartridge type (for analytical)	4.0	10
72-580010W	HSR C18, 5um for semi-prep	5	Guard column/Filling type (for semi-prep)	8.0	10
72-P2050W	HSR C18, 5um for prep	5	Guard column/Filling type (for prep)	20	50

- P/N 72-515010W and 72-540010W is a set of Guard cartridge holder (1piece) and guard cartridge (1 piece).
- All Develosil columns have Waters compatible end-fitting.
- It has prepared a variety of column sizes at our company. Column size that is not listed in the price list, please consult.

New information and application data catalog download the home page!!
www.develosil.net



Information

Application

Price list

Contact Us

Develosil®



News

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Japanese

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