

# SEC Columns (GPC/GFC)

• Inertsil Diol .....	088
• Inertsil WP300 Diol .....	090

# Inertsil Diol

- **Base Material** : 3 Series High Purity Silica Gel
- **Particle Size** : 3  $\mu\text{m}$ , 5  $\mu\text{m}$
- **Surface Area** : 450  $\text{m}^2/\text{g}$
- **Pore Size** : 100  $\text{\AA}$  (10 nm)
- **Pore Volume** : 1.05 mL/g
- **Functional Group** : Diol (Dihydroxypropyl Groups)
- **End-capping** : No
- **Carbon Loading** : 20 %
- **USP Code** : L20
- **pH Range** : 2 - 7.5

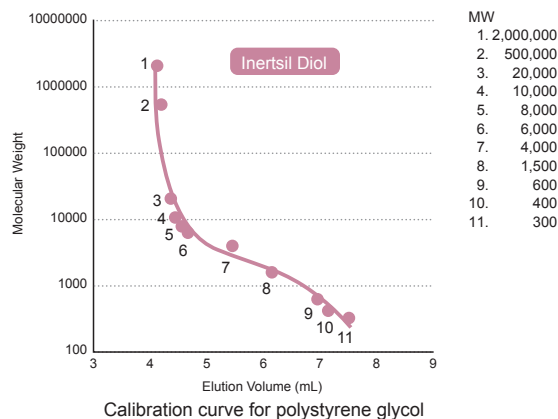
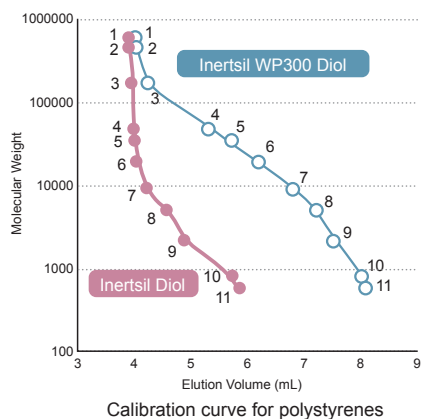


Inertsil Diol, dihydroxypropyl groups chemical bonded onto silica gel, can be used as aqueous SEC (GFC) or organic SEC (GPC) (Figure 1). As features of the packing material, it can analyze with several columns in series since 20 MPa (200 bar) as the maximum operating pressure, and it is higher than polymer base columns.

Figure 2 shows an example of polystyrene analysis with Inertsil Diol and Inertsil WP300 Diol in series. With coupling 2 columns in different pore size in series, it can be used for broader range of molecular weight compared with Figure 1 calibration curve.

General internal diameter of SEC columns are 7-8 mm. But even if 4.6 mm I.D. column, it can obtain calibration curve with smaller elution volume rather than 7.6 mm I.D. column. Therefore it can be analyzed with saving solvent, environment conservation, and low cost.

**Figure1 : Calibration Curve for Aqueous and Organic SEC Analysis**



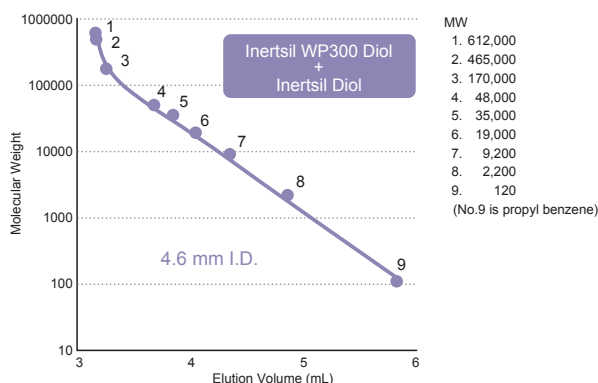
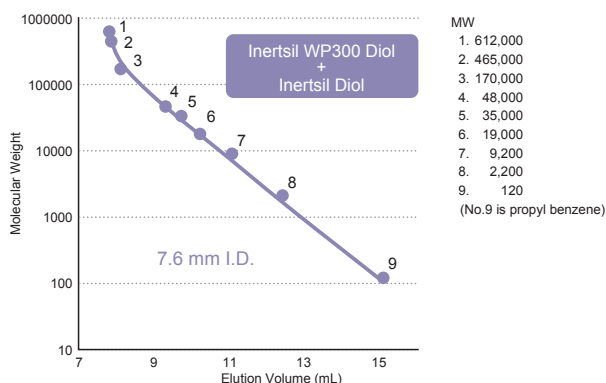
**Conditions**

Column : Inertsil WP300 Diol (5  $\mu\text{m}$ , 250  $\times$  7.6 mm I.D.)  
 Eluent : THF  
 Flow Rate : 1.0 mL/min  
 Col. Temp. : 40  $^{\circ}\text{C}$   
 Detection : UV 254 nm

**Conditions**

Column : Inertsil Diol (5  $\mu\text{m}$ , 250  $\times$  7.6 mm I.D.)  
 Eluent : H<sub>2</sub>O  
 Flow Rate : 1.0 mL/min  
 Col. Temp. : 40  $^{\circ}\text{C}$   
 Detection : RI (Cell Temp. 35  $^{\circ}\text{C}$ )

**Figure2 : Calibration Curve for Small I.D. SEC Columns**



**Conditions**

Column : Inertsil WP300 Diol (5  $\mu\text{m}$ , 250  $\times$  7.6 mm I.D.)  
 + Inertsil Diol (5  $\mu\text{m}$ , 250  $\times$  7.6 mm I.D.)  
 Eluent : THF  
 Flow Rate : 1.0 mL/min  
 Col. Temp. : 35  $^{\circ}\text{C}$   
 Detection : UV 254 nm

**Conditions**

Column : Inertsil WP300 Diol (5  $\mu\text{m}$ , 250  $\times$  4.6 mm I.D.)  
 + Inertsil Diol (5  $\mu\text{m}$ , 250  $\times$  4.6 mm I.D.)  
 Eluent : THF  
 Flow Rate : 0.3 mL/min  
 Col. Temp. : 35  $^{\circ}\text{C}$   
 Detection : UV 254 nm

## Analytical Columns

Particle Size: 3 µm	Length \ I.D. (mm)	1.0	1.5		
	33	5020-86531	5020-86541		
	50	5020-86532	5020-86542		
	75	5020-86533	5020-86543		
	100	5020-86534	5020-86544		
	150	5020-86535	5020-86545		
	250	5020-86536	5020-86546		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	33	5020-05411	5020-05421	5020-05431	5020-05441
	50	5020-05412	5020-05422	5020-05432	5020-05442
	75	5020-05413	5020-05423	5020-05433	5020-05443
	100	5020-05414	5020-05424	5020-05434	5020-05444
150	5020-05415	5020-05425	5020-05435	5020-05445	
250	5020-05416	5020-05426	5020-05436	5020-05446	
Particle Size: 5 µm	Length \ I.D. (mm)	1.0	1.5		
	33	5020-86511	5020-86521		
	50	5020-86512	5020-86522		
	75	5020-86513	5020-86523		
	100	5020-86514	5020-86524		
	150	5020-86515	5020-86525		
	250	5020-86516	5020-86526		
	Length \ I.D. (mm)	2.1	3.0	4.0	4.6
	33	5020-05611	5020-05621	5020-05631	5020-05641
	50	5020-05612	5020-05622	5020-05632	5020-05642
	75	5020-05613	5020-05623	5020-05633	5020-05643
	100	5020-05614	5020-05624	5020-05634	5020-05644
	150	5020-05615	5020-05625	5020-05635	5020-05645
	250	5020-05616	5020-05626	5020-05636	5020-05646
	Length \ I.D. (mm)	6.0	7.6	10	
	50	5020-05652	5020-05662	5020-86552	
	100	5020-05654	5020-05664	5020-86554	
	150	5020-05655	5020-05665	5020-86555	
250	5020-05656	5020-05666	5020-86556		

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)		Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)	
			Particle Size		Particle Size	
			3 µm	5 µm	3 µm	5 µm
1.0	10	1.0	5020-19223	5020-19222	5020-19273	5020-19272
1.5, 2.1		1.5	5020-19323	5020-19322	5020-19373	5020-19372
2.1, 3.0		3.0	5020-19123	5020-19122	5020-19173	5020-19172
4.0, 4.6		4.0	5020-19023	5020-19022	5020-19073	5020-19072
2.1, 3.0	20	3.0	5020-19523	5020-19522	5020-19573	5020-19572
4.0, 4.6		4.0	5020-19423	5020-19422	5020-19473	5020-19472
Holder for Cartridge Guard Column E				For 10 mm Length		5020-08500
				For 20 mm Length		5020-08550

Reversed Phase Columns

HILIC Columns

Normal Phase Columns

SEC Columns

Ion Exchange Columns

Application Specific Columns

Guard Columns

Preparative Columns

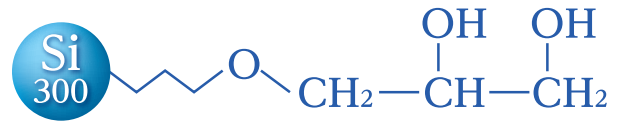
Capillary Columns

Applications

Cat. No. Index

# Inertsil WP300 Diol

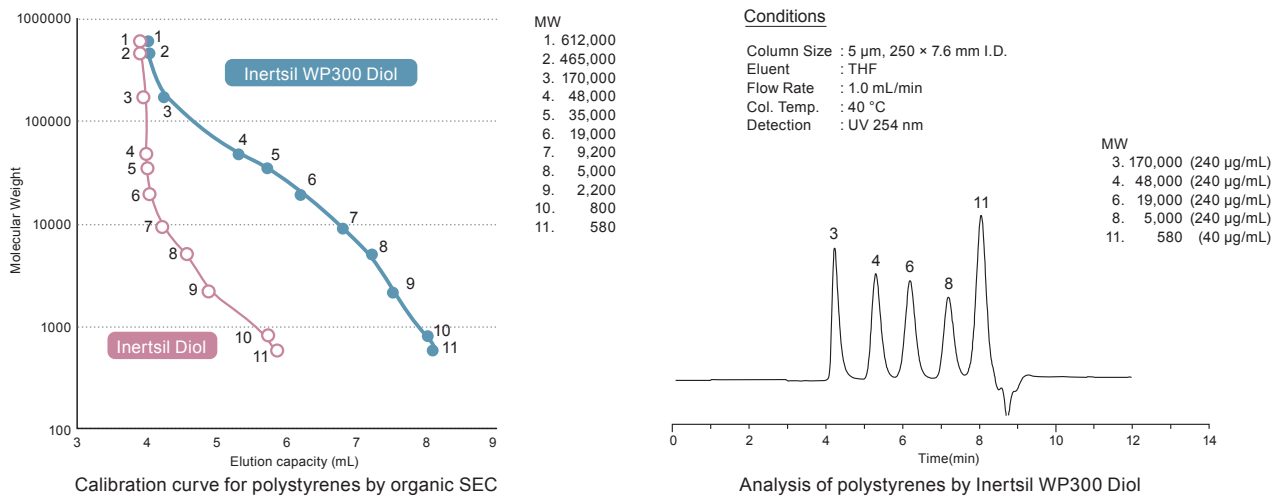
- **Base Material** : WP300 Series High Purity Silica Gel
- **Particle Size** : 5 µm
- **Surface Area** : 150 m<sup>2</sup>/g
- **Pore Size** : 300 Å (30 nm)
- **Pore Volume** : 1.05 mL/g
- **Functional Group** : Diol (Dihydroxypropyl Groups)
- **End-capping** : No
- **Carbon Loading** : 9 %
- **USP Code** : L20, L33
- **pH Range** : 2 - 7.5



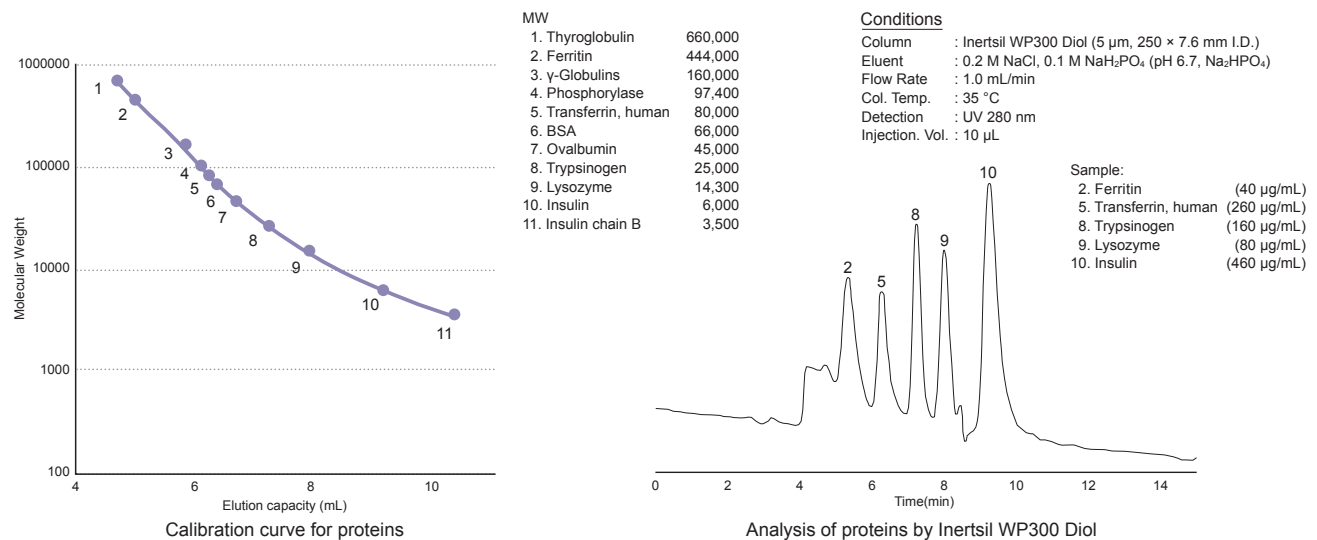
Inertsil WP300 Diol has dihydroxypropyl group bonded to silica gel with pore size 300 Å and is capable of analyzing large molecules. Like Inertsil Diol, Inertsil WP300 Diol can be used for both aqueous SEC (Size Exclusion Chromatography) and organic SEC. Also, as a diol column, Inertsil WP300 Diol can be used in both normal phase and reversed phase mode.

As the pore size of silica gel is wider than that of Inertsil Diol, Inertsil WP300 Diol is capable of separating compounds with a broader range of molecular weight than Inertsil Diol (Figure 1).

**Figure 1 : Calibration Curve and Analysis of Polystyrenes**



**Figure 2 : Calibration Curve and Analysis of Proteins**



## Analytical Columns

Particle Size: 5 µm	Length \ I.D. (mm)	1.0	1.5	2.1	3.0	4.0	4.6	
	33	5020-85911	5020-85921	5020-05911	5020-05921	5020-05931	5020-05941	
	50	5020-85912	5020-85922	5020-05912	5020-05922	5020-05932	5020-05942	
	75	5020-85913	5020-85923	5020-05913	5020-05923	5020-05933	5020-05943	
	100	5020-85914	5020-85924	5020-05914	5020-05924	5020-05934	5020-05944	
	150	5020-85915	5020-85925	5020-05915	5020-05925	5020-05935	5020-05945	
	250	5020-85916	5020-85926	5020-05916	5020-05926	5020-05936	5020-05946	
	Length \ I.D. (mm)	6.0	7.6	10				
	50	5020-05980	5020-05985	5020-85932				
	100	5020-05981	5020-05986	5020-85934				
150	5020-05982	5020-05987	5020-85935					
250	5020-05983	5020-05988	5020-85936					

## Cartridge Guard Column E

I.D. of the Analytical Column Applicable (mm)	Length (mm)	I.D. (mm)	Replacement Cartridge E Guard Column (2 pcs)	Cartridge E Holder / Cartridge Set (2 Cartridge E Guard Columns & 1 Holder)
			Particle Size	Particle Size
			5 µm	5 µm
1.0	10	1.0	5020-19231	5020-19281
1.5, 2.1		1.5	5020-19331	5020-19381
2.1, 3.0		3.0	5020-19131	5020-19181
4.0, 4.6		4.0	5020-19031	5020-19081
2.1, 3.0	20	3.0	5020-19531	5020-19581
4.0, 4.6		4.0	5020-19431	5020-19481
Holder for Cartridge Guard Column E	For 10 mm Length			5020-08500
	For 20 mm Length			5020-08550

Reversed Phase Columns

HILIC Columns

Normal Phase Columns

SEC Columns

Ion Exchange Columns

Application Specific Columns

Guard Columns

Preparative Columns

Capillary Columns

Applications

Cat. No. Index