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## OPERATING CONDITIONS and SPECIFICATIONS

### TSKgel<sup>®</sup> Protein C4-300 Products

<b>Part Numbers:</b>	0022830	2.0 mm ID x 5.0 cm L		<b>3.0 µm</b>
	0022831	2.0 mm ID x 10.0 cm L		<b>3.0 µm</b>
	0022832	2.0 mm ID x 15.0 cm L		<b>3.0 µm</b>
	0022827	4.6 mm ID x 5.0 cm L		<b>3.0 µm</b>
	0022828	4.6 mm ID x 10.0 cm L		<b>3.0 µm</b>
	0022829	4.6 mm ID x 15.0 cm L		<b>3.0 µm</b>
<b>Guardcolumn:</b>	0022834	2.0 mm ID x 1.0 cm L	For 2.0 mm ID TSKgel Protein C4-300 columns	<b>3.0 µm</b>
	0022833	3.2 mm ID x 1.5 cm L	For 4.6 mm ID TSKgel Protein C4-300 columns	<b>3.0 µm</b>

This sheet contains the recommended operating conditions and the specifications for TSKgel Protein C4-300 columns and guardgel kits. Installation instructions and column care information are described in a separate Instruction Manual.

#### A. OPERATING CONDITIONS

- Shipping Solvent: Acetonitrile
- Standard Flow Rate: 0.20 mL/min 2.0 mm ID  
1.00 mL/min 4.6 mm ID
- Max. Flow Rate: Use at a flow rate (usage flow rate) that does not exceed the maximum pressure drop

**NOTE:** When a buffer with high viscosity is used, the maximum flow rate may have to be reduced so as not to exceed the recommended pressure drop. When changing solvents, use a flow rate equal to 25% of the maximum flow rate.

- Max. Pressure:

15 MPa	2.0 mm ID x 5.0 cm L
22.5 MPa	2.0 mm ID x 10.0 cm L
30 MPa	2.0 mm ID x 15.0 cm L
10 MPa	4.6 mm ID x 5.0 cm L
17.5 MPa	4.6 mm ID x 10.0 cm L
25 MPa	4.6 mm ID x 15.0 cm L
- Temperature: 10 – 50 °C
- pH Range: 1.5 – 7.5
- Salt Conc.: No limitation  
Don't use under conditions in which salt is precipitated in aqueous solution of organic solvents.
- Organic Conc.: No limitation  
Don't use under conditions in which salt is precipitated in aqueous solution of organic solvents.
- Cleaning Solvents:
  - Sample property: hydrophobic compounds  
Water soluble organic solvents such as 70-100% acetonitrile and methanol in aqueous buffer
  - Sample property: basic compounds  
Acidic solutions containing water soluble organic solvents acetonitrile and methanol

10. Storage:

If the column is used in routine daily operation, it is permissible to leave the mobile phase in the column overnight if the mobile phase is not corrosive. If halides are included in the mobile phase, it is better to replace the mobile phase with a suitable solvent (for example "Packed Solvent" shown in the INSPECTION DATA sheet) even for one night.

If the column will not be used for several days, it should be stored as follows:

- a) Purge the system with the "Packed Solvent" shown in the INSPECTION DATA sheet at a flow rate one-half of the operating flow rate. (Purge the system with distilled or ion-exchanged water if you have used a buffer solution, as a mobile phase, which contains salt in considerably high concentrations.)
- b) Remove the column from the system and keep the ends of the column tightly capped with the end plugs supplied with the column.
- c) Store the column at a relatively constant temperature in its original shipping container. Take care not to allow the column to freeze during storage.

11. Column Protection:

The use of the **TSKgel** Guard cartridge is recommended to prolong the life of the **TSKgel** Protein C4-300 columns. Guard cartridge life depends greatly on sample cleanliness. As a general rule, guard cartridges should be replaced when the peaks become excessively wide, or when the peaks show splitting.

**B. SPECIFICATIONS**

The performance of **TSKgel** C4-300 columns is tested under the conditions described in the Data Sheet. All columns have passed the following quality control specifications

Number of Theoretical Plates (N):	≥ 4,500	2.0 mm ID x 5.0 cm L
	≥ 10,000	2.0 mm ID x 10.0 cm L
	≥ 15,500	2.0 mm ID x 15.0 cm L
	≥ 6,000	4.6 mm ID x 5.0 cm L
	≥ 11,500	4.6 mm ID x 10.0 cm L
	≥ 17,000	4.6 mm ID x 15.0 cm L
Asymmetry Factor (AF):	0.90 – 1.35	2.0 mm ID x 5.0 cm L
	0.90 – 1.30	2.0 mm ID x 10.0 cm L
	0.90 – 1.30	2.0 mm ID x 15.0 cm L
	0.90 – 1.35	4.6 mm ID x 5.0 cm L
	0.90 – 1.30	4.6 mm ID x 10.0 cm L
	0.90 – 1.30	4.6 mm ID x 15.0 cm L