

Shodex™



HPLC Columns

MANUAL

GPC LF-404

SHOWA
DENKO
EUROPE

Columns manufactured by Showa Denko K.K Japan
Made in Japan

Shodex HPLC Columns
Europe, Middle East, Africa, Russia

For technical support please use
contact details shown below:

SHOWA DENKO EUROPE GmbH
Shodex Business
Konrad-Zuse-Platz 3
81829 Munich, Germany

E-mail: support@shodex.de
Phone: +49 (0)89 93 99 62 37
www.shodex.de

Operation Manual

Shodex™ GPC LF-404 for organic GPC

(Please read this manual carefully before using the column to keep its good performance and life.)

1. Introduction

Shodex GPC LF-404 is a downsized GPC column whose calibration curve has a really high linearity. It is packed with single grade of particle, each of which has a broad pore size distribution. Therefore on a chromatogram, no unnatural distortion is generated, which are often observed when using conventional linear type columns packed with mixed grade of particles.

2. Specification

Column size:	I.D: 4.6mm; Length: 250 mm.
Connector:	Internally-threaded type, No. 10-32 UNF.
Column material:	316 stainless steel.
Packing material:	Styrene-divinylbenzene copolymer.
In column eluent:	THF.
Exclusion limit:	2×10^6 (as polystyrene)
Theoretical plate number:	>14000/column (>56000/m)

3. Analysis condition

Flow rate:	<0.60 ml/min (recommended: 0.30 ml/min)
Pressure:	<3.5 MPa per column
Temperature:	20~60°C (recommended: 25~40°C)
Injection volume:	recommended: 5~30 μ l
Sample concentration:	In case the sample is a polymer, its concentration in the solution and the injection volume should be 0.05 - 0.5% and 50 - 100 μ l, respectively. If the concentration is higher, the retention volume of the sample will increase. The optimum concentration changes

with the molecular weight and the viscosity. The following table gives the molecular weight vs. the optimum concentration.

<u>Molecular weight</u>	<u>Optimum concentration (%)</u>
Up to 5,000	<1.0
5,000 – 25,000	<0.5
25,000 – 200,000	<0.25
200,000 – 2,000,000	<0.1
Above 2,000,000	<0.05

4. Replacement of in-column eluent

This column is filled with THF, which can be replaced with other eluents such as toluene and chloroform. Please set flow rate at 0.1 ml/min when replacing the in column eluent.

Avoid repeated replacement of the in-column eluent with a different one. Such replacement may deteriorate column performance.

5. Instrument

Please use a HPLC system with low dead volume because the column size is fairly small.

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Eluent line between injector and column: 0.1mm I.D.

Eluent line between column and detector: 0.1mm I.D.

Semi micro cell

6. Other information

The features of the packing material are the same as GPC KF series. For other analytical conditions, please refer to the operation manual for KF-800 series.