

# Shodex™



## HPLC Columns

MANUAL

ET RP1 4D

**SHOWA**  
**DENKO**  
EUROPE

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

**Shodex HPLC Columns**  
Europe, Middle East, Africa, Russia

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# Operation Manual

## Shodex™ ET-RP1 4D

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

### 1. Introduction

Shodex ET-RP1 4D column for reversed phase chromatography is packed with spherical porous polymeric particles that have alkyl groups bound to the surface. ET-RP1 4D column has durability at high temperature and is compatible with the commonly used reversed-phase HPLC eluents between pH 4 to pH 9.

### 2. Instructions in handling <Important>

**Warning!** \*Take notice of keeping instructions about the solvents and the reagents used with the column not to occur problems related to losing your health or accidents (fire or explosion) by leaking.

**Caution!** \*Use the column within the regular range of flow rate, pressure and temperature. There is a danger of deteriorating the performance when it is handled beyond the permissible range even for a short time. See the clause “Usable conditions” about the concrete instructions in handling and the permissible range.

### 3. Specifications

Column size:	4.6 mm ID x 150 mm L.
Column material:	SUS 316.
Functional group:	Octadecyl.
In-column solvent (initial):	Acetonitrile/Water = 65/35.
Number of theoretical plates:	>11000 per column (at 40°C).

### 4. Usable conditions

Pressure:	<15.0 MPa per column.
Flow rate:	Follow as the maximum pressure.
Temperature:	20~150°C.

pH:	4~9
Eluent:	Acetonitrile: 0~100%, Ethanol: 0~100%, Water: 0~100%

**Caution!** (Caution for general)

- 1) Do not remove the end fittings of the column under any circumstances.
- 2) Do not make a strong impact on the column: such as hitting or dropping on the floor.
- 3) Replace the solvent in the chromatograph with the eluent to be used before connecting the column.
- 4) Connect the column so that the flow direction corresponds to the arrow mark on the tag.
- 5) When the column is not used for a month or more, replace the in-column solvent with 30-50% Acetonitrile, close each end with a stopper, and store it at room temperature.
- 6) Filtrate the sample with a disposable filter (0.45 $\mu$ m) to prevent deterioration by adsorbing insoluble matters.

**Caution!** (Caution for use at higher temperature than 75 °C)

- 1) Please be careful hereinafter when the column is used at higher temperature than the boiling point of the solvent which is included in the mobile phase.

[Selection of a column-oven and the operation]

- 2) Please be careful hereinafter when a column-oven is selected and the operation:
  - Use a suitable column-oven which corresponds to the analytical conditions.
  - Decrease the temperature of the eluent to the suitable level before introducing it into the detector.
  - Use a suitable column-oven which has safety measures against the leak of the eluent
  - Use SUS tube which has durability against high temperature in the column-oven.
  - Use SUS ferrules and fittings which have durability against high temperature for connecting a column.
  - For the safety against the leak of the eluent, be careful about placing other equipments around the vent of the column-oven and ventilating the room.

[Connection of a column]

- 3) There is a possibility that the screw at the connecting point between the tube and the column loosens by the temperature change, so please check the connection between the tube and the column at the temperature which is analyzed and prevent the leak of the mobile phase.
- 4) Be careful with a burn when you check the column connection.