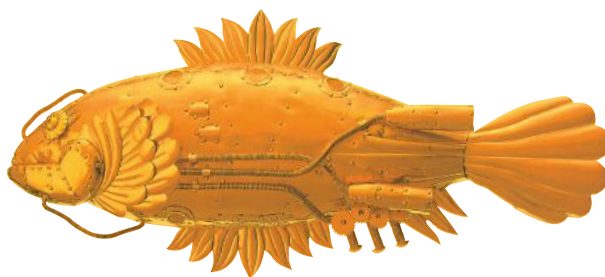


Shodex™



HPLC Columns

MANUAL

IC SI-35 4D

SHOWA
DENKO
EUROPE

Shodex HPLC Columns
Europe, Middle East, Africa, Russia

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Operation Manual

Shodex™ IC SI-35 4D

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

1. Introduction

Shodex IC SI-35 4D is the column for rapid analysis of inorganic anions such as fluoride, chloride, nitrite, bromide, nitrate, phosphate, sulfate and oxyhalides like chlorite, chlorate and bromate by suppressed conductivity analysis.

2. Instructions in handling <Important>

Caution!* Take notice of keeping instructions about the solvents and the reagents used with the column to prevent problems such as damaging your health or solvent leaking.

Attention!* Use the column within the permissible range of flow rate, pressure and temperature. There is a danger of deteriorating of the performance when it is handled beyond the permissible range even for a short time. See the clause "Usable conditions" about the permissible range.

3. Specifications

Column size:	4.0 mm ID × 150 mm L
Column type:	PEEK
Packing material:	Porous particle; Polyvinyl alcohol type bounded with quaternary ammonium.
Particle size:	3.5 μm
Shipping solvent:	3.6 mM Na ₂ CO ₃
TPN (per column):	≥13,000 (SO ₄ ²⁻)

4. Usable conditions

Flow rate:	Max flow rate is 0.8 mL/min. <ul style="list-style-type: none">• Recommended flow rate is the using at 0.6 mL/min.• Flow rate should be less than 0.3 mL/min at exchanging solvents.• Flow rate setting should be regulated less than 0.3mL/min at starting a pump. Then the flow rate should be increased gradually to an operating flow rate.
Pressure:	Max pressure per column is 15.0 MPa.
Temperature:	20 — 60°C <ul style="list-style-type: none">• Recommended temperature is 45 °C.• The column performance depends on operating temperature. The elution volume might be changed depending on operating temperature.
pH range:	3 — 12

Eluent: Sodium carbonate aqueous solution is commonly used.

- The packing material is an anion exchanger made from chemically bonded polyvinylalcohol gel. 3.6 mM Na₂CO₃ aqueous solution is common eluent condition.
- The higher concentration of sodium carbonate, the elution is the weaker retention.
- Organic solvents can be used: less than 10 volume% methanol or at any ratio of acetonitrile.

5. Cleaning method

- Pollution by hydrophilic compounds: At the flow rate of 0.3 mL/min with ion exchanged water (15min), then the eluent of 10 times concentration (60min), and with ion exchanged water (15min).
- Pollution by hydrophobic compounds: At the flow rate of 0.3 mL/min with ion exchanged water (15min), then 5% of acetonitrile aq. (15min), then with 100% acetonitrile (60min), then with ion exchanged water (30min).

Attention!

- 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 a hard surface.
- 3) Connect the column so that the flow direction corresponds to the arrow mark on the tag.
- 4) Filtrate the sample with a disposable filter (0.45 μm) to prevent deterioration by adsorbing insoluble matters.
- 5) When the column is not used for a month or more, replace the in-column solvent with the initial shipping solvent, close each end with a stopper, and store it at room temperature.
- 6) The sample solution should be filtrated using membrane filter (0.45μm) before analysis to prevent the deterioration of the column performance.
- 7) The guard column Shodex IC SI-95G is recommended to be connected at the upper stream of IC SI-35 4D to prevent deterioration of the analytical column.
- 8) Do not tighten the column connection excessively. It is recommended to use hand tight type PEEK screws and ferrules for column connection by hand.