

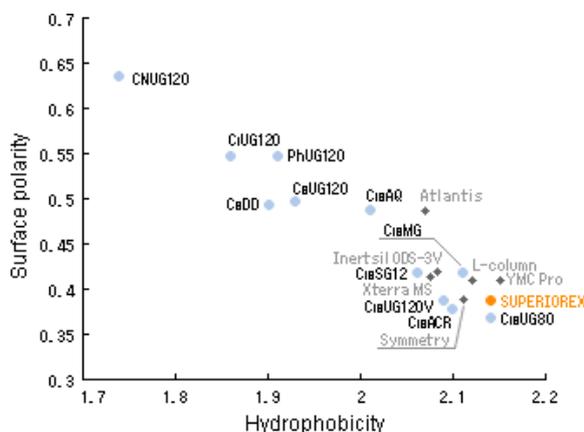
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# SUPERIOREX ODS

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**Overview** User's Manual

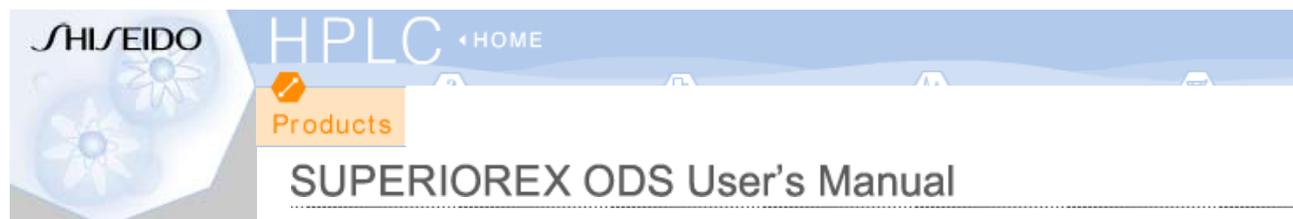


5      520      25      2.2      Octadecyl group      2~8      L1

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## SUPERIOREX ODS User's Manual

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SUPERIOREX ODS User's Manual

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SUPERIOREX ODS for high performance liquid chromatography is filled with ODS silica packing material based on precisely classified high-quality spherical silica.

### 1. Handling the Column

1. Handle the column with great care. A strong shock may cause damage.
2. Attach or detach the column when the pressure gage indicates zero.

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### 2. Attaching the Column

1. The column joint is of the male nut type for piping of 1/16 inch OD. Check that the tubing joints of the system fit correctly and that the ferrule tips are deeply inserted into the joints. (See Fig. 1.)
2. Before attaching the column, replace the liquid in the system with the mobile phase to be used.
3. Attach the column according to the direction of the arrow.

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### 3. Analysis

#### 3-1. Mobile Phase

1. All solvents acceptable for conventional chemically bonded silica columns can be used.
2. SUPERIOREX ODS can be used in the pH range from 2 to 7. To prevent early deterioration of the column, make sure that the pH of a mobile phase will not exceed this range.  
Unlike CAPCELL PAK, SUPERIOREX ODS is not compatible with basic mobile phases.
3. After full degassing, filtrate the mobile phase using a membrane filter 0.45  $\mu\text{m}$  or smaller to remove dust. A 2- $\mu\text{m}$  filter is used at the column inlet. To prevent foreign matter from clogging the column inlet filter, we recommend using a line filter.
4. The mobile phase is sealed in a new column at the time of inspection. To change to a mobile phase containing inorganic salt, note the replacement procedure.
5. To prevent column deterioration, avoid the following:
  - . Frequent change of the mobile phase composition or direct change to a mobile phase of low compatibility
  - . Rapid change in column inlet pressure
  - . High column pressure due to the use of a high-viscosity mobile phase
6. The separation characteristic of SUPERIOREX ODS may differ slightly depending on the compound. For a sample that cannot be separated or separation is not satisfactory using conventional columns, first try the same mobile phase as originally used. Since the retention is about 1.4 times greater than that of CAPCELL PAK C18, consider the composition of the mobile phase.
7. The maximum operating pressure of the SUPERIOREX ODS column is 20 MPa. Be extremely cautious when using a high-viscosity mobile phase such as those containing ethanol or isopropyl alcohol.

#### 3-2. Preparing a Sample Solution

1. Dissolve the sample in a solvent of the same composition as the mobile phase wherever possible.
2. Using a solvent with strong dissolving power may lower separation efficiency or cause the sample

- to precipitate at the column head.
- If there is insoluble matter remaining in the sample solution, filtrate the solution using a filter 0.45  $\mu\text{i}$  or smaller.

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#### 4. Storing the Column

- Seal the column with the accessory plug and store it in a cold place where there is little temperature fluctuation.
- If a mobile phase containing acid, base, or inorganic salt has been used, rinse the column thoroughly with water and then store the column with methanol of 50vol% or more.

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#### 5. End Fittings

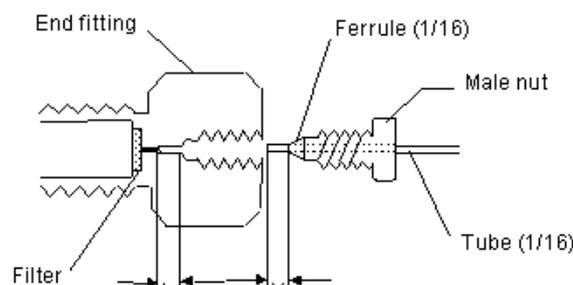
- An analytical column of up to 6 mm ID uses a filter-embedded end fitting as shown in Fig.. The filter cannot be changed alone. If the filter is clogged or the column pressure is high, replace the end fitting. See Table 1 for the replacement parts and repair items.
- See Fig. 1 for the column connection. If the tubing is inappropriate, especially if a tube for a different type of column is used, the length after the ferrule tip (V in Fig. 1) is often different from the end fitting length L, and a problem may occur.
 

If L is greater than V, dead volume may be generated and cause peak broadening or tailing or deterioration of separation performance.

If L is smaller than V, liquid leak may occur because of inadequate ferrule adhesion.

Therefore, we recommend replacing the ferrule together with the column.

\*If the column is replaced frequently, the male nut may crush the ferrule and liquid may leak. Since tightening the nut too much may cause its head to come off, replace the ferrule at an early stage.



【Fig. 1】 Column connection

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#### 6. Replacement Parts and Repair Items

Table 1 Replacement parts and repair items

Part No.	Part Name	Description
EF2052	End fitting (4.6 mm)	2 pieces
EF2160	Piping kit(2pcs)	Male nuts (1/6) and ferrules (1/16) 2pieces each
EF2161	Ferrule (1/16)	Ferrules (1/16)10pieces

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#### 7. Troubleshooting

Problems in high performance liquid chromatography are attributable to various causes that cannot all be enumerated. The table below describes some comparatively common problems related to the column.

Symptom	Cause	Measures
1. Column pressure rise.	Blocking with foreign matter 1. Dust or insoluble matter in the mobile phase or sample solution.	<ul style="list-style-type: none"> <li>Sonicate the filter or replace it.</li> <li>Filtrate the mobile phase and sample solution in advance using</li> </ul>

	<ol style="list-style-type: none"> <li>2. Dirt in the tubing.</li> <li>3. Plunger seal fragment.</li> <li>4. Precipitation of sample components.</li> </ol>	<ul style="list-style-type: none"> <li>• a membrane filter.</li> <li>• Attach a line filter.</li> <li>• Clean the tubing and replace the plunger seal.</li> <li>• Prepare a sample solution with the mobile phase.</li> </ul>
2. Peak splitting, tailing, and broadening.	<ol style="list-style-type: none"> <li>1. Void in the column head.</li> <li>2. Dead volume due to inappropriate connections.</li> <li>3. Inappropriate mobile phase conditions.           <ul style="list-style-type: none"> <li>• Ion suppression method: Inadequate suppression (Too much sample).</li> <li>• Ion-pair method: Inadequate concentration of the ion-pair agent (Too much sample).</li> </ul> </li> <li>4. Column deterioration.           <ul style="list-style-type: none"> <li>* Not repairable in the case of column deterioration or damage to the packing condition.</li> </ul> </li> </ol>	<ul style="list-style-type: none"> <li>• Replenish the packing material.</li> <li>• Reconnect the tubing.</li> <li>• Review the pH, salt concentration, sample amount, and other conditions.</li> <li>• Review the ion pair agent concentration, pH, sample amount, and other conditions.</li> <li>• Check the column performance using standard inspection solution.</li> </ul>
3. Retention time too long or unstable.	<ol style="list-style-type: none"> <li>1. Liquid leak (Indicated on the pressure gage of the pump).</li> <li>2. Inappropriate mobile phase conditions.</li> <li>3. Inadequate column equilibration time.</li> </ol>	<ul style="list-style-type: none"> <li>• Check the pump and tubing for any leaks.</li> </ul> <p>See 2-3.</p> <ul style="list-style-type: none"> <li>• Secure adequate equilibration time.</li> </ul>
4. Retention time too short.	<ol style="list-style-type: none"> <li>1. Hydrolysis (deterioration) of a bonded groups by strong acid or base.</li> <li>2. Inappropriate mobile phase conditions.</li> <li>3. Inadequate column equilibration time.</li> </ol>	<p>-</p> <p>See 2-3.</p> <ul style="list-style-type: none"> <li>• Secure adequate equilibration time.</li> </ul>

SUPERIOREX ODS is shipped after a strict performance check. However, if you should find any defect, please contact your dealer or Shiseido for replacement.

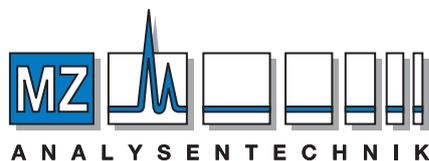
Note that Shiseido does not warrant the product against column life or deterioration caused by the failure to follow the above handling instructions.

Ten or more days after reception by the customer, Shiseido will assume that the product was delivered in good condition, and will not accept a later replacement request.

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