

Shimadzu High Performance Packed Column for HPLC

Shim-pack

MAYI-ODS(G)

Instruction Manual

■ Introduction

Shim-pack MAYI-ODS(G) is a high performance reversed-phase column for HPLC designed to extract and concentrate analytes in samples. The packing material is composed of totally porous, high purity spherical silica particles. The outer surfaces of the silica particles are coated with hydrophilic polymer, and the inner surfaces of their pores are chemically bonded with octadecyl (-ODS) groups and thoroughly endcapped. This column makes it possible to configure the analysis system to inject the sample directly that must be deproteinized like serum.

■ Specifications

● Packing

Item	Contents
Silica particles	Spherical, porous, high purity silica particles
Particle size	50 μm
Pore size	12 nm
Outer surface modification	Methylcellulose (coating)
Inner surface modification	Octadecyl groups (monofunctional)

● Column

Item	Contents
Type	Cartridge
Dimension	(228-40835-91) 4.6 mm <i>i.d.</i> \times 10 mm (228-40835-97) 4.6 mm <i>i.d.</i> \times 30 mm (228-40835-93) 2.0 mm <i>i.d.</i> \times 5 mm (228-40835-95) 2.0 mm <i>i.d.</i> \times 10 mm
Operating Pressure	Max. 10 MPa
pH range	2 - 7.5
Operating temperature	Max. 50 $^{\circ}\text{C}$

■ Column Installation

- As shown below, the Shim-pack MAYI-ODS(G) column is assembled with its holder so that its flow direction arrow matches the mobile phase flow direction. Tighten the holder with an open-end wrench just enough to prevent leaks; do not overtighten. Overtightening may result in damage to the column and reduced performance.

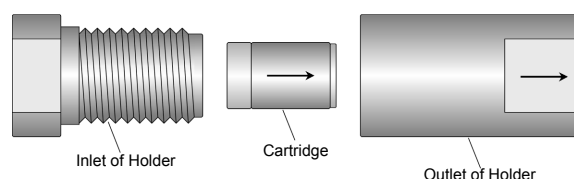


Fig.1 : Column Assembly

- The product name and the parts number of the holders are as follows.

Product Name	P/N	Note
Column Holder, 10 \times 4.6	228-34938-92	for 4.6 \times 10
Column Holder, 5 \times 2.0	228-34938-94	for 2.0 \times 5
Column Holder, 30 \times 4.6	228-34938-96	for 4.6 \times 30
Column Holder, 10 \times 2.0	228-34938-98	for 2.0 \times 10

- The column is connected with supplied PEEK malenuts. Ensure that the fittings are connected properly to avoid creating dead volume between the tubing and the column interface.

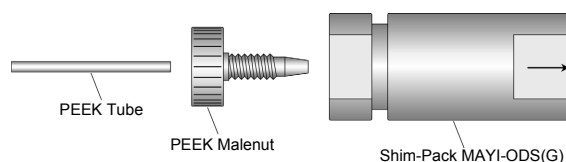


Fig.2 : Column Connection

- Tubing of the connection must be used the PEEK or SUS tube, 0.25 - 0.3 mm *i.d.* and 1.6 mm *o.d.*. Do not make too long to prevent the broadening of the peak.
- As shown below, the Shim-pack MAYI-ODS(G) column is connected via column switching valve. To use the column effectively, we recommend the special tubing kit for "Co-Sense for BA" to connect it.

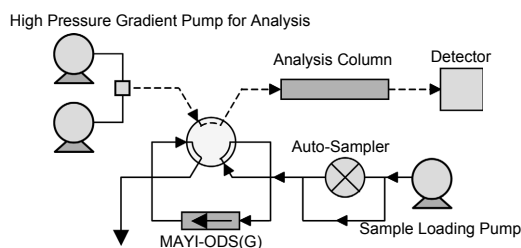


Fig.3 : Flow Diagram of Co-Sense for BA

NOTE: Entering contaminants of the flow line or air bubbles into the column may cause deterioration of the performance. Be sure to flush the flow line with the mobile phase before connecting the column.

■ Mobile Phase Solvent

- Generally, in reversed phase chromatography, the mobile phase consists of a mixture of water and acetonitrile or methanol.
- Buffer solutions can be used instead of water. However, the pH must be carefully monitored to ensure that it is within an acceptable range for stationary phase stability.

■ Column Handling Precautions


- Do not overtighten the column malenuts during installation. This may damage the fittings.
- Be sure to use the column within the conditions mentioned in "■ Specification". Do not make abrupt change of the pressure. It may deteriorate the column.
- Mobile phase and sample solutions must be filtered with a membrane filter, or an equivalent, before use (check filter type first for organic solvent compatibility). Suspended particles will lead to column clogging, which will increase the system pressure.
- To remove the column from the system, be sure to confirm the temperature of the column becomes the room temperature and the pressure of the column becomes zero.
- Do not shock the column by banging it or dropping it.

■ Flushing the Column

To remove the lipid-soluble substances or ionic substances from the column which may cause unstable retention time or bad shape of the peak, connect the column so as to opposite mobile phase direction (opposite direction from flow direction of the sample loading mobile phase) and flush the column as followings. If inorganic salts (phosphate and so on) are present, first flush the column with pure water at the rate mentioned below so that the salts do not precipitate. After the flushing, re-connect the column in order as it was before. Replace with mobile phase not to remain the flushing liquid.

<Flushing Procedure>

Firstly, flush with about 20 mL of 0.1% trifluoroacetic acid (TFA) acetonitrile or methanolic solution, and then flush with about 5 mL of acetonitrile or methanol at 0.5 mL/min.

 **NOTE:** The column cannot be regenerated, if it is heavily contaminated.

■ Column Storage

When removing the column (with its holder) from the system, cap both ends of the column so that the solvent cannot evaporate.

For long-term storage, first flush the column, replace the mobile phase with acetonitrile or methanol, then cap both ends of the column before storage. Remember to flush with water first if buffers were used as the mobile phase.

■ Technical Support

It is the customer's responsibility to develop and validate analytical conditions for a particular application. However, Shimadzu offers technical support by e-mail and phone for customers who need help.

Write specific questions to analytic@group.shimadzu.co.jp or call your local representative.

Hint:

The analytes in the sample is released from the binding protein by acetonitrile or pH buffering and trapped by the Shim-pack MAYI-ODS(G). On the other hand, the compounds which has large molecular weight like protein is not retained to the column carrier by the effect of the surface hydrophilic treatment and eliminated. At the same time, the in-line filter, standard accessories of the Co-Sense for BA removes the insoluble element larger than 2 μ m in the physiological sample and avoid the column from the damage by the insoluble element. However, replace the flit in the in-line filter in case of the pressure increase. The product name and the parts number of the spare flit are as follows.

Item Name	P/N	Comment
Frit, 1125-2P	228-32744-03	5/pkg

* The contents of this instruction sheet are subject to change without notice.