

## Shimadzu Packed Column for Micro-flow HPLC

# Shim-pack MC C18

## Instruction Manual

### ■ Introduction

Shim-pack MC-C18 is high separation column for micro flow HPLC. The packing material is composed of 1.9  $\mu\text{m}$  of totally porous, high purity spherical silica particles. The surfaces of the silica particles are chemically bonded with octadecylsilyl groups (C18) and thoroughly endcapped.

### ■ Specifications

#### ● Packing

Item	Contents
Silica particles	Spherical, porous, high purity silica particles
Particle size	1.9 $\mu\text{m}$
Pore size	20 nm
surface modification	Octadecylsilyl groups
Other modification	Endcapping
Carbon loading	9.0 %

#### ● Column body

Item	Contents
Inner Surface material	Glass, PEEK, PTFE, Stainless Steel

#### ● Others

Item	Contents
Storage solvent	Please see the Column performance report.
Maximum operating pressure	70 MPa
Maximum operating temperature	60 °C
pH range	1.0 - 7.5

### ■ Lineup

Length	0.30 mm i.d.	0.175 mm i.d.	0.15 mm i.d.
50 mm	228-59937-91	228-59937-93	228-59937-95

### ■ Certificate of Compliance

- This column contains the column performance report. The packing material lot number, column serial number and column performance are described therein. Please keep this report for future reference.

### ■ Column Installation

- The flow direction of the column is shown on the column tag. When installing the column, ensure that the flow direction arrow matches the mobile phase flow direction.

- Endure that the fittings are connected properly to avoid creating dead volume between the tubing and the column interface. Dedicated fitting to the micro flow system such as Shimadzu Nexlock is recommended to connect tubing.
- When connecting tubing, hold the end fitting on the mounting side in order not to twist the column.
- Use the shortest possible tubing connection from the injector to the column to minimize peak broadening.
- If immoderate peak tailing is observed, please check that the column is properly connected with the appropriate fittings.

#### NOTE:

The stain or air in the flow line may deteriorate the column. Before connecting the column, be sure to flow the mobile phase to flush the flow line. Before connecting the column, check that the mobile phase flows out from the pipe connected to the column inlet. Then stop the delivering flow and connect the column.

### ■ Mobile Phase Solvent

- When analyzing ionic substances, the separation characteristics of the compounds are kept uniform by the addition of acids, such as acetic acid or formic acid, or pH modifiers, such as ammonium acetate or ammonium formate. However, the pH must be carefully monitored to ensure that it is within an acceptable range for stationary phase stability.

### ■ Column Handling Precautions

- The HPLC column for micro flow is a very delicate column. Do not shock the column by banging it or dropping it, and disassemble it.
- Observe the conditions of pressure limits, temperature limits and pH limits given in "■ Specifications".
- Although this column shows high pressure resistance, it is recommended to use up to 60 MPa for maximizing column life.
- Typical flow rates are shown below.
 

0.3 mm I.D.	: 4 ~ 10 $\mu\text{L}/\text{min}$
0.175 mm I.D.	: 2 ~ 5 $\mu\text{L}/\text{min}$
0.15 mm I.D.	: 1 ~ 3 $\mu\text{L}/\text{min}$

- 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.

- The steep pressure change over the column may cause deterioration.
- Filter the mobile phase and sample solutions through a membrane filter (0.2 µm or less), or an equivalent, before use. Suspended particles will lead to column clogging, which will increase the system pressure.
- Samples should be dissolved in the eluent or solvent weaker than the eluent, which helps avoid sample precipitation at the column inlet/head and inconsistent retention values.
- When using the column, replace the enclosed eluent in the column with the mobile phase used for analysis, and then connect the piping on the column exit.

## ■ Column Storage

- When removing the column from the system, cap both ends of the column so that the solvent cannot evaporate and store with a stable temperature. For long-term storage, first flush the column, replace the mobile phase with methanol or the solvent described at column performance report, then cap both ends of the column before storage.
- After using the columns with eluent containing buffer or ion-pair reagent, wash the column thoroughly with a salt-free eluent before storing

## ■ 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](mailto:analytic@group.shimadzu.co.jp) or call your local representative.

We regret that we cannot guarantee the lifetime of columns, nor can we accept any claim when their performance has deteriorated due to no-compliance with the above operating manual or as a result of normal aging.

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