

Column Care and Use Instructions

YMC-Pack Diol

1. Introduction

Thank you for purchasing a YMC high-performance liquid chromatography (HPLC) column. "YMC-Pack Diol" is a HPLC column for gel filtration chromatography column that the diol group was chemically bonded to the porous spherical silica gel. The functional group is chemically bonded with low nonspecific adsorption even in the separation of hydrophilic proteins.

YMC HPLC columns, which are manufactured under highly controlled conditions, must pass a series of stringent tests before being accepted for shipment. (Please refer to the column inspection report). To ensure optimal performance and durability of the column, please read these instructions carefully before using this column.

2. Column connections

The "WT" or "QT" at the end of the product code indicates the style of column endfittings.

WT = Waters style / QT = Parker style

3. Shipping solvent

The column is shipped in the 0.05% sodium azide aqueous solution. Flush with water sufficiently before replacing with the mobile phase.

4. Mobile phase

- The correct direction of the solvent flow is indicated by an arrow on the column identification label.
- Aqueous solvents are basically used. Total salt concentration of mobile phase should be lesser than 0.7 M. Tris-HCl, citrate, etc. are applicable as buffer solution. These buffer solutions are available with solutions containing buffer salt/additives such as sodium chloride, sodium sulfate, and ammonium sulfate.
- Aqueous solutions of urea and guanidine hydrochloride which are used for a denaturant of the protein can be used. Moreover, 0.1% or less concentration of surface-active agents such as Tween80, SDS is also usable. When using these mobile phases, the equilibration of the column needs long time as compared to the general mobile phase.
- When using methanol or acetonitrile as a mobile phase, be mindful of the operation pressure rising by increasing viscosity. Hydrocarbon solvents and chlorinated solvents like chloroform are not suitable as a mobile phase.
- Recommended pH ranges of the column are between 5.0 – 7.5. When using the column at pH near the upper or lower limit, the column durability will shorten under certain conditions by temperature and mobile phase composition.
- For storage except daily use, the column should be flushed thoroughly with water, replaced in aqueous solution of 0.05% of sodium azide, which should be sealed the both ends tightly and stored in a location with minimal temperature change. In next time, flush with water sufficiently before replacing with the mobile phase.

5. Column cleaning (general method)

In the case that some hydrophobic proteins or the hydrophobic materials are adsorbed or retained, flush the column with solvent containing high salt concentration (approx. 0.5 M). At that time, be careful about usable pH.

6. Other environments

- The operating pressure should be kept under 20 MPa (2900 psi), for Glass column, under 5 MPa (725 psi).
- To prevent exposure of the column to excessive pressure, the sample solution should be filtered through a 0.2 µm membrane or smaller to remove particulates. We recommend using a pre-column filter to prevent the column frit from being clogged with samples.
- Avoid using a column repeatedly near the pressure limit or abrupt change in pressure to prevent shortening of the column life.
- Adjust the flow rate appropriately because the pressure changes depending on the column length, temperature, types of organic solvent etc.
- The upper limit of column temperature is 40 °C.