

YMC-Actus Series

Column Care and Use Instructions

① Introduction

Thank you for purchasing a YMC-Actus series column. YMC-Actus series is designed for preparative HPLC with excellent durability even under ballistic gradient conditions causing large pressure fluctuation. YMC manufactures YMC-Actus series under strict quality standards and delivers only those columns that pass such stringent tests prior to shipment (please refer to the COLUMN INSPECTION REPORT). In order to ensure optimal performance and durability of the column, please follow these instructions.

② Specifications

	Packing material	Particle size (μm)	Pore size (nm)	C%	pH range	Max. Temp.(°C)
Triart	Triart C18	5	12	20	1.0-12.0	pH1-7 : 70 pH7-12 : 50
Pro series	Pro C18	5	12	16	2.0-8.0	50
	Hydrosphere C18	5	12	12		
	Pro C18 RS	5	8	22	1.0-10.0	
	Pro C8	5	12	10	2.0-7.5	
YMC-Pack series	ODS-A	5	12	17	2.0-7.5	50
	ODS-AQ	5	12	14		

③ Shipping solvent

The column is shipped in the eluent shown in the COLUMN INSPECTION REPORT. If you intend to store the column for a long time, replace the eluent in the column with shipping solvent.

④ Eluent

- Aqueous and nonaqueous solvents (like acetonitrile, methanol, tetrahydrofuran, etc) are applicable. However continuous replacement of solvents, which have wide differences in polarity, may degrade the column performance. For use of THF, please mind the solvent resistance of your system (e.g., PEEK tubing).
- Solvent should flow in the direction of the arrow as indicated on the column label.
- Please refer to the above specifications table for the usable pH range for your column. When using the column at pH near the upper or lower limit, eluent containing 10% concentration of organic solvent should be used. The column durability will shorten under certain conditions by temperature and eluent composition.
- Because YMC-Pack Pro C18 RS packing material is more hydrophobic than most general use C18 columns, changing eluents or equilibrating the column with eluents containing low percentages of organic solvent is sometimes difficult. Please note these two points:
 - When using methanol/water eluents, it is sometimes difficult to produce stable retention times with eluents containing less than 10 % methanol.
 - When changing eluents from methanol/water to acetonitrile/water containing < 20 % acetonitrile, it is sometimes possible to experience retention time drift or distorted peak shape. In this case, please flush the column with 60 % acetonitrile (aqueous solution) for several column volumes and then re-equilibrate the column with the desired aqueous-acetonitrile eluent.

⑤ Column cleaning (general method)

- When using eluent containing neither buffer nor salts is used and you are trying to remove substances that show great retention on the column, wash the column with a solvent composition of higher organic solvent (maximum 100%) concentration to remove substances that otherwise would remain in the column. When a lipophilic component is stubbornly retained on the column, the addition of THF to the washer solvent may be effective in removing strongly retained substances.
- When using eluent containing buffer or salts, wash as above after replacement of the eluent with a mixture of water and organic solvent (at the same ratio as the eluent but containing neither buffer nor salts). When the eluent containing buffer or salts at about 50 mM, the eluent can be replaced directly with 60% acetonitrile aqueous solution.
- After using a column near the usable pH limit, washing the column with water alone may cause column deterioration. Flush the column with a mixture of water and organic solvent described above or 60% acetonitrile aqueous solution before replacing the solvent.
- To avoid contaminating the column by adsorption of high molecular weight compounds such as proteins or polysaccharides, pretreatment of the sample is necessary.

⑥ Other environments

- The upper limit of column pressure is about 30 MPa.
- The upper limit of column temperature is shown in the specifications table above. However, we recommend using the column between 20°C and 40°C because some conditions of usage, such as operating at the extremes of pH of the eluent, may shorten the column lifetime especially at the upper temperature limit of the column. When using the column long term under alkaline conditions, it is recommended to use a low concentration (about 1 to 10 mM) of organic buffer with eluent (methanol is recommended) at lower temperature (less than 30°C).
- Heating the eluent through semi-preparative scale columns, its heat conducting effect against the volume of the column would be insufficient. The eluent may lose its uniformity in temperature. It may result in irregularities in peak shapes such as peak broadenings and peak splits. It is recommended to preheat the eluent.