Boltimate® Core-Shell Column Care and Use anual

Thank you for choosing a Welch Boltimate® column. The Boltimate® column is a high- speed,high-performance liquid chromatography column based on a new Core-Shell particle design.This Core-Shell particle provides a thin porous shell of high purity silica surrounding a solid silica core.The overall particle size is 2.7-microns.And the thick of porous shell is 0.5-micron.This particle design can exhibits very high column efficiency due to the shallow diffusion paths. Welch offer various bonded phases based on our unique technology.

Phase Characteristics:

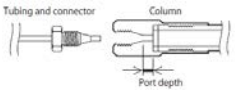
Phase	Particle size μm	Pore size Å	S.A. m^2/g	Carbon load %	End cap	pH range
C18	2.7	90	120	9	Yes	2 - 8.5
Phenyl-Hexyl	2.7	90	120	7	Yes	2 - 8.5
EXT- C18	2.7	90	120	8	Yes	1.5-12
EXT- PFP	2.7	90	120	5	Yes	1.5-10
HILIC	2.7	90	120	-	-	2 - 8.5
LP - C18	2.7	90	120	7	No	1 - 8.5

Operational Guidelines

Column Installation:

1.Please use the right fitting to contact the column and instrument. Insure a leak-free connection.

The End fitting of Boltimate® column:



Port style of Endfitting	Port depth
Parker	2mm

2.Use the mobile phase same as test report flush the column at low flow rate when the first use.

Application Notice:

- The direction of flow is marked on the column.The column should only be operated in this direction.
- Use only high purity reagents and high quality chromatography grade solvents to prepare mobile phase;Degas and filter all mobile phase prior to use.
- Avoid use of column out the pH range.
- These columns can be used up to 60℃(low pH) or 40℃(high pH)
- These columns are packed and assembled for use up to 60Mpa(9000psi).Note that operating at or near the maximum pressure will result in shorter column lifetimes.

System optimization:

Boltimate® 2.7μm core-shell columns operate comfortably within the pressure limits of conventional LC instruments and rival the performance of sub-2μm fully porous particles achieved on UHPLC instruments. However, to maximize the benefits from your Boltimate® core-shell columns do the following:

- **Detector**

1. Flow cells should be of low-volume design, semi-micron cell(preferably<2μl).

2. Optimize detector settings by adjusting the scan rate and/or the time constant to the fastest possible settings such that signal-to -noise (s/n) is not adversely affected.

- **Injector**

The injection system should be of a low-volume design(e.g., Rheodyne Model 8125).

- **Connecting Tubing**

1. Minimize the length of all connection tubing (injector-column -detector).

2. Use 0.12 mm ID(0.005 in.)or 0.10mm ID(0.004 in.)tubing.

3. Use extremely low dead-volume fittings.

- **Sample solvent and injection volume**

1. Minimize sample dispersion before the column

2. The volume of sample injected should be kept as small as possible (typically 22μl or less).

Care and Storage:

To maximize column life, ensure that samples and mobile phase are particle-free. Please use guard columns or precolumn filter with 0.5 micron.The frits of Boltimate® column is 2μm, this are less subject to pluggage than are the 0.5μm frits typically used with other small particle column.Should the operating pressure of column suddenly increase beyond normal levels,reversing the flow direction of the column may be attempted to remove debris on the inlet frit.

To remove strongly retained materials from the column,flush the column in the reverse direction with very strong solvents such as 100% of the organic component of the mobile phase in use.

Storage: Please store the column in 100% organic solvent(or high percent organic mobile phase).And the end-fittings should be tightly sealed with the end-plugs to prevent the packing from drying.

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