

SurePac Bio 550 SEC MDi quick start guide

Getting started

Prior to using the Thermo Scientific™ SurePac™ Bio 550 SEC MDi™ columns, review all the information in this section on column operation. By adhering to these specifications for your column, you can ensure optimal performance and maximize its lifespan. Following these guidelines will help the column function as intended. For more comprehensive information on the usage of your column, we recommend referring to the product manual.

Column use and physical specifications

To ensure that you do not damage the column hardware or packed bed, take care to operate within the limits of the column. The table below indicates the operational limits for each column format in terms of maximum column pressure drop from inlet to outlet, temperature, and mobile phase pH. For best column performance, use low-dispersion UHPLC systems. Reference the product manual for additional details.

Column format	Cat. no.	Recommended max flow rate	Max column pressure drop ¹ psi (bar)	Temperature °C	pH
2.1 × 150 mm	43903-152131	0.125 mL/min	3500 (241)	Ambient – 60°C	2–8
2.1 × 30 mm	43903-032131				
4.6 × 150 mm	43903-154631				
4.6 × 30 mm	43903-034631				
7.8 × 150 mm	43903-157831				
7.8 × 30 mm	43903-037831				

¹ The column pressure drop for a given flow rate is calculated as the pressure of the system with column minus the pressure of system with union in place of column.

Recommended buffers

Please consult the table below for recommended buffer conditions to achieve optimal separations and maintain good column performance throughout its lifetime.

Parameter	Recommended
Buffer	<ul style="list-style-type: none">Phosphate buffer with NaCl, e.g. 50 mM phosphate buffer (pH 6.5) + 0.3 M NaClGood's buffer with NaCl, e.g. 20 mM MES buffer (pH 6.1) + 0.3 M NaClAmmonium formate or ammonium acetate solutions, pH 5–7
Organic solvent compatibility ²	Compatible with 100% organic solvents
Detergent compatibility	Compatible with 0.1% SDS, though binding will be irreversible, and it is recommended that the column be dedicated to this application
Storage solution	<ul style="list-style-type: none">Short term (<1 day): column mobile phaseLong term (>1 day): 75% acetonitrile in deionized water

² Acetonitrile and methanol have viscosity maxima when mixed with water at certain ratios. This may cause unexpectedly high pressure. Always use low flow rates until the pressure behavior is understood when using these chemicals. Mixtures of ACN and MeOH should be introduced and removed gradually from the column using a gradient over 20 minutes to ensure a sharp viscosity front does not result in a rapid pressure difference in-column that may damage the packed bed.

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Color variations may be observed due minor differences in film thickness and are not indicative of incomplete coating.

Additional requirements for safe column operation

- Always set up the mobile phase flow direction as indicated on the column label
- Avoid exposing the column bed to sharp pressure fluctuations that may disrupt the column bed
- When starting, stopping, or changing the flow rate, a flow ramp rate (mL/min/min) of ~1/3 of the recommended flow rate for the specific column format is recommended
- Before using the column with mobile phase, flush the chromatography system and column with DI water to remove the storage solution and avoid possible salt precipitation