



The scalable family of QuikScale columns delivers greater product purity at faster linear velocities.

Packing the QuikScale® 630 mm Column with ProSep® Base Support

The 630 mm QuikScale column, like all columns in the QuikScale product family, is robust and reliable, and uniquely designed for use in modern chromatography. Resins such as controlled pored glass (CPG®) serve as a non-derivatized base support for media such as ProSep media. ProSep media exhibits excellent chemical stability, forms a robust stable packed bed, and is designed and developed specifically for the large-scale purification of monoclonal antibodies. The design of the QuikScale 630 mm column ensures the performance of the resin at higher flow rates.

Excellent Performance

Process advantages of ProSep media enable greater flexibility and a more robust process, allowing for higher bed heights and flow rates. The QuikScale 630 mm column design accommodates a range of linear velocities with minimal pressure differentials. This is a very important

performance characteristic of media such as CPG.

A QuikScale 630 mm column with an acrylic tube was packed with CPG resin (See Figure 1), the non-derivatized base support for the ProSep media.

A pulse injection of sodium chloride was made in order to characterize the pack.

Figure 1.

Study Details

Packing Parameters

Media	CPG Base Support
Packing Buffer	RO Water
Slurry Concentration	50% v/v
Packing Rate	580 cm/h
Bed Height	21 cm
Sample	1.5 L of 2 M NaCl
Qualification Rate	400 cm/h

Acceptance Criteria for Qualification Injection

HETP	< 0.1 cm
Asymmetry	0.8 – 1.6

Before use, the CPG base support was defined three times in a slurry tank with RO water. The column was then packed following this method:

1. Slurry was transferred to the open column using a Millipore Slurry Transfer Skid.
2. The top flow adapter was set at two times the final bed height.
3. The bed was fluidized at 100 cm/h per two column volumes (cv).
4. The flow pack was set at 20 L/min (580 cm/h) for 2cv. The flow was then stopped for two minutes, after which it was reapplied for three minutes.
5. The cycle (flow/stop/flow) was repeated three times.

6. The top flow adapter was then lowered to 1.2 times the final bed height and flow was reapplied for five minutes. The adapter was then lowered into contact with the bed.
7. Upward flow was initiated at 5 L/min (100 cm/h) flow rate for five minutes to purge any air from the top process lines. The column was then equilibrated with 2cv.

After the flow packing was completed, an injection was made into the adjuster inlet. A sample trace was obtained by measuring the dynamic absorbance of the column eluent.

Pack acceptance criteria were met on the first pack. Results are given in Figure 2.

Conclusion

The 630 mm QuikScale column can be packed successfully with incompressible media. The column can be operated at high flow rates (more than 500 cm/h) without risk of bed support weakening or detachment.

Figure 2.

HETP and Asymmetry Results for QuikScale 630 mm Column

HETP	0.08 cm
Asymmetry	0.95

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