

# UNO™

I o n   E x c h a n g e   C o l u m n s



{ Chromatography will never be the same. }

**BIO-RAD**

# UNO

# *is a first*



The structure of the Continuous Bed matrix can be seen in this scanning electron micrograph (1.95k magnification).

Note the fimbriated structure of the polymer nodules and the large channels between them.

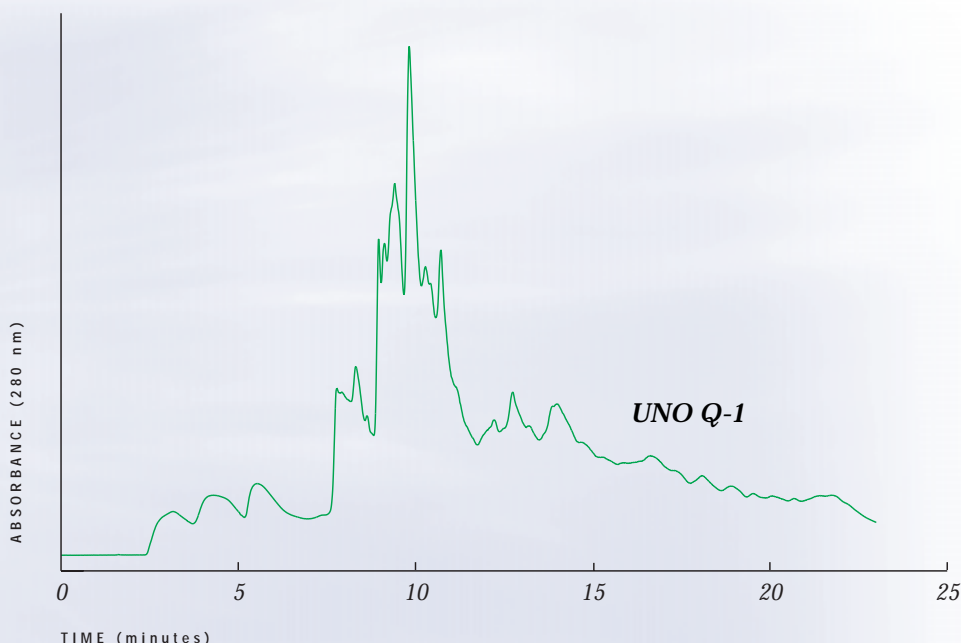
UNO is the very first chromatography column to contain the revolutionary Continuous Bed matrix. Unlike traditional columns which consist of a bed of packed beads or particles, each UNO column contains an advanced polymer matrix that is completely homogeneous. This new matrix overcomes every problem associated with chromatography using beaded supports, while capitalizing on their advantages.

The benefits of the Continuous Bed matrix for the separation of biomolecules are numerous. By its very nature, the technology behind UNO leads to a column that's number one in every area:



## Number one in resolution

**B**io-Rad's UNO columns consist of a hydrophilic matrix containing a dense network of channels with intrinsic Q and S ionic functional groups. The nonporous nature of the polymer matrix allows extremely fast mass transfer of proteins and eluant to the functional groups, minimizing band-broadening during the chromatographic process (see Figure 1). This results in unsurpassed resolution of protein peaks, even at high flow rates.



**Figure 1. Resolution Study: 1ml/min, Yeast Enzyme Extract**

## Number one in speed

One of the major advantages of the Continuous Bed matrix over traditional beaded supports is the ability to run at high flow rates with low back pressure. The rigid matrix surrounding the channels and its nonporous nature results in minimal loss in resolution at high flow rates (see Figure 2). A 1 ml UNO column can complete your separation in about 3 minutes!

## Number one in binding capacity

UNO columns have excellent capacity due to the dense network of polymer nodules containing the ionic functional groups – completely accessible to biomolecules via the interconnecting channels. Better still, even at the maximum flow rates, there is no loss in binding capacity (see Figure 3). Another clear advantage of the Continuous Bed technology behind UNO!

## Number one in value

The process used to manufacture each UNO column provides unsurpassed quality and batch-to-batch reproducibility. Each column is guaranteed to perform well, separation after separation. In addition, the homogeneous nature of the Continuous Bed polymer matrix prevents its fragmentation, so UNO columns last longer. Figure 4 shows the performance reproducibility of the UNO column after 96 sample injections and gradient elutions.

The many advantages of Continuous Bed technology make UNO your best value in a chromatographic column. In addition, Bio-Rad continues to pursue environmentally-friendly technologies with each new development. UNO is a perfect example. Should your column ever be fouled beyond repair, a simple, economical bed replacement is available – there's no need to purchase a whole new column.

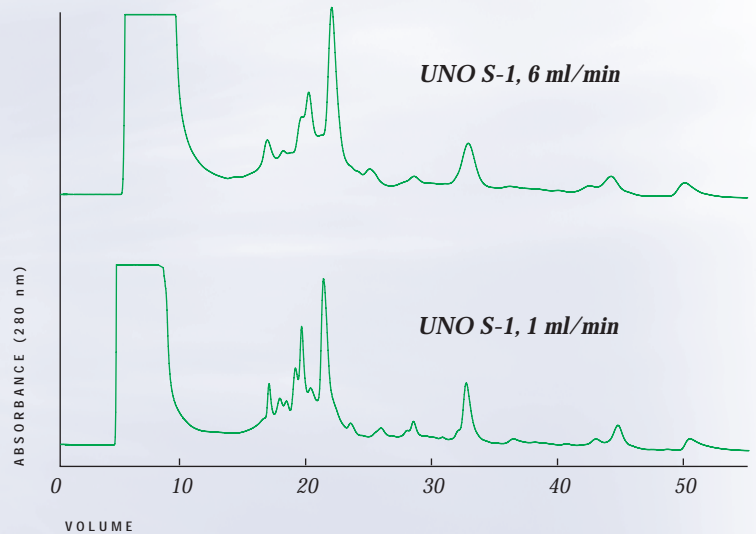


Figure 2. Flow Rate Study: Snake Venom Separation

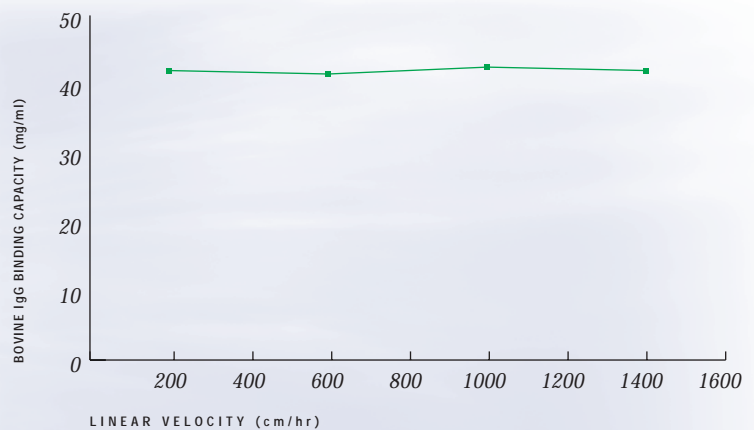


Figure 3. Dynamic Binding Capacity: UNO S-1 with Bovine IgG

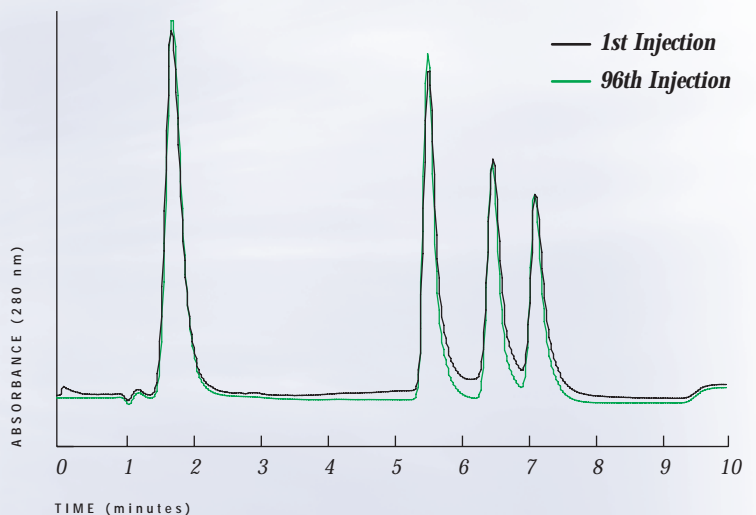


Figure 4. Column Lifetime Study Performed on UNO Q-1 Column

## UNO Glass Column Specifications

UNO glass columns are designed to meet the needs of the bio-chromatographer for high resolution separations of biomolecules. Three column sizes provide flexibility for purification protocols without sacrificing resolution due to overloading.

Catalog Number	Product Description	Column Volume (ml)	Recommended Max. Protein Loading (mg)	Recommended Flow Rate Range (ml/min)	Column Dimension (mm)	Max. Operating Pressure (psi/MPa/bar)
720-0001	<b>UNO Q-1 Column</b>	1.3	20	0.5 to 5.0	7 x 35	700/4.5/48
720-0003	<b>UNO Q-6 Column</b>	6	90	0.5 to 8.0	12 x 53	700/4.5/48
720-0005	<b>UNO Q-12 Column</b>	12	180	0.5 to 10.0	15 x 68	700/4.5/48
720-0021	<b>UNO S-1 Column</b>	1.3	20	0.5 to 6.0	7 x 35	700/4.5/48
720-0023	<b>UNO S-6 Column</b>	6	90	0.5 to 8.0	12 x 53	700/4.5/48
720-0025	<b>UNO S-12 Column</b>	12	180	0.5 to 10.0	15 x 68	700/4.5/48
750-0568	<b>10-32 Fittings Kit</b> , set of 2 nuts and 4 ferrules to connect an UNO column to an HPLC system					
750-0567	<b>M6 Fittings</b> , set of 2 nuts and 4 ferrules to connect an UNO column to an FPLC® system					

## UNO Replacement Column Specifications

Replace used UNO column beds and save money at the same time. UNO replacement columns provide a simple bed replacement as an alternative to purchasing whole new columns.

Catalog Number	Product Description	Column Volume (ml)
720-0011	<b>UNO Q-1R Column</b>	1.3
720-0013	<b>UNO Q-6R Column</b>	6
720-0015	<b>UNO Q-12R Column</b>	12
720-0031	<b>UNO S-1R Column</b>	1.3
720-0033	<b>UNO S-6R Column</b>	6
720-0035	<b>UNO S-12R Column</b>	12

## UNO Polishing PEEK Column Specifications

UNO polishing columns are designed specifically as a late-stage purification tool to obtain the highest resolution and recovery from small sample loads. This unique purification tool allows you to purify and concentrate dilute sample in one step.

Catalog Number	Product Description	Column Volume (ml)	Recommended Max. Protein Loading (mg)	Recommended Flow Rate Range (ml/min)	Column Dimension (mm)	Max. Operating Pressure (psi/MPa/bar)
720-0009	<b>UNO Q Polishing Column</b>	0.16	2	0.1 to 1.0	4.6 x 10	200/1.3/14
720-0029	<b>UNO S Polishing Column</b>	0.16	2	0.1 to 1.0	4.6 x 10	200/1.3/14
750-0568	<b>10-32 Fittings Kit</b> , set of 2 nuts and 4 ferrules to connect an UNO column to an HPLC system					
750-0567	<b>M6 Fittings</b> , set of 2 nuts and 4 ferrules to connect an UNO column to an FPLC® system					

FPLC is a trademark of Pharmacia Biotech AB.



**Bio-Rad  
Laboratories**

ISO 9005 registered

www.bio-rad.com

Life Science  
Group

U.S. (800) 451-0700 Australia (02-90514280) Austria (51) 87730 03 Belgium (04-388 55 55) Canada (905) 712-2775 China (86-20) 2048822  
Denmark (45) 7700 77 Finland (00 304 2200) France (0) 48 00 48 00 Germany (09) 8 388 40 Hong Kong (852) 00 45 45 000  
Italy (02) 925 4227 Italy (02) 21800 5 Japan (03-55 5270) The Netherlands (06) 38 840888 New Zealand (04-448 3000)  
Singapore (65) 222 4877 Spain (91) 66 5 70 85 Sweden (8) 70 627 20 00 Switzerland (01-800 55 55) United Kingdom (020) 8 538 4