

Zeba Spin Desalting Columns and Plates, 7K MWCO

Pub. No. MAN0015751
Pub. Part No. 2162579.1
Rev A.0

Number	Description
89877	Zeba Spin Desalting Columns, Micro (75μL), 25 columns, for 2-12 μ L samples
89878	Zeba Spin Desalting Columns, Micro (75μL), 50 columns, for 2-12 μ L samples
89882	Zeba Spin Desalting Columns, 0.5mL, 25 columns, for 30-130 μ L samples
89883	Zeba Spin Desalting Columns, 0.5mL, 50 columns, for 30-130 μ L samples
89889	Zeba Spin Desalting Columns, 2mL, 5 columns, for 200-700 μ L samples
89890	Zeba Spin Desalting Columns, 2mL, 25 columns, for 200-700 μ L samples
89891	Zeba Spin Desalting Columns, 5mL, 5 columns, for 500-2000 μ L samples
89892	Zeba Spin Desalting Columns, 5mL, 25 columns, for 500-2000 μ L samples
89893	Zeba Spin Desalting Columns, 10mL, 5 columns, for 700-4000 μ L samples
89894	Zeba Spin Desalting Columns, 10mL, 25 columns, for 700-4000 μ L samples
89807	Zeba Spin Desalting Plates, 96-well, 2 plates
89808	Zeba Spin Desalting Plates, 96-well, 4 plates

Note: These products are recommended for processing compounds > 7000Da. The resin slurry is supplied in 0.05% sodium azide.

Storage: Upon receipt store at 4°C. Product shipped at ambient temperature.

Introduction

The Thermo Scientific™ Zeba™ Spin Desalting Columns contain a high-performance resin that offers exceptional desalting or buffer-exchange for protein samples. Samples volumes between 2 μ L-4mL and containing as low as 20 μ g of protein/mL can be processed with unsurpassed protein recovery and \geq 95% retention of salts and other small molecules (< 1000Da). These columns require no chromatography system. The spin-column method eliminates waiting for samples to emerge by gravity flow and the subsequent monitoring of fractions for protein recovery.

Important Product Information

- The Zeba Spin Desalting Columns and Plates contain a size-exclusion chromatographic resin to separate proteins from small molecules. As with all size exclusion-based separation, the amount of small molecule removed and protein recovered are affected by the nature of the molecules and volume of sample. The sample volumes recommended provide exceptional removal of a variety of small molecules (typically > 95% for molecules < 1000Da); however, proteins and small molecules often behave differently than predicted because of a variety of factors such as hydrophobicity, secondary structure and interactions. Therefore, some optimization of sample volume might be required to achieve optimal performance for each specific sample. In general, reducing the sample volume added to the column increases small molecule removal, and increasing sample volume maximizes protein recovery.
- Also available are Zeba Spin Desalting Columns and Plates with a 40K MWCO, which enable removal of salts and other small molecules < 2000Da and recovery of proteins and other macromolecules > 40,000Da.

Procedure for Desalting or Buffer Exchange

Additional Materials Required

- For 75µL and 0.5mL spin columns: Bench-top microcentrifuge (1500 × g) and 1.5mL microcentrifuge tubes
Note: Use a centrifuge that can be adjusted to 1500 × g, such as the Thermo Scientific™ Sorvall™ Legend Micro 17 Microcentrifuge
- For 2 and 5mL spin columns: Centrifuge (1000 × g) and 15mL conical tubes
- For 10mL spin columns: Centrifuge (1000 × g) and 50mL conical tubes
- For the desalting plates: Variable-speed centrifuge with rotor and carrier capable of handling stacked plates (height = 4.4cm) at 1000 × g
- Wash/equilibration buffer
Note: Use the same wash/equilibration (stacker) buffer as is desired for the final sample solution. Equilibrating the desalting resin before sample loading is necessary to ensure proper buffer exchange.

Procedure for Protein Desalting

Note: See **Table 1** for centrifugation times and volumes for the buffer, stacker and sample for each device. For maximum protein recovery, add a stacker on top of the applied sample for volumes below the volume specified in **Table 1**.

- Remove the column's bottom closure or the plate's bottom sealing material. Loosen cap (do not remove cap).
- Place the column into a collection tube or plate on top of a wash plate and centrifuge to remove the storage solution.
- Discard flow-through and replace the column back into the collection device.
- Add wash/equilibration buffer on top of the resin. Centrifuge device and discard flow-through. Repeat this step two additional times.

Note: After each spin, the resin should appear white and free of liquid. If liquid is present, make sure you are using the correct centrifugation speed and time. Incomplete centrifugation may result in poor sample recovery or sample dilution.

- Blot the bottom of the column or plate to remove excess liquid. Transfer device to a new collection tube or plate.
- Apply sample on top of the resin. If needed, add a stacker as soon as the sample has entered the resin. Adding a stacker is optional but recommended for dilute protein solutions or small sample volumes to ensure maximum sample recovery.
- Centrifuge and retain flow-through that contains sample. Discard spin column or plate.

Table 1. Centrifugation times and volumes for the buffer, stacker and sample.

Column or Plate	<u>75µL</u>	<u>0.5mL</u>	<u>2mL</u>	<u>5mL</u>	<u>10mL</u>	<u>Plate</u>
Sample Volume Range (µL)	2-12	30-130	200-700	500-2000	700-4000	20-100
Wash/equilibration Buffer Volume	50µL	300µL	1mL	2.5mL	5mL	250µL
Sample Volume (µL)*	< 5	< 70	< 350	< 750	< 1500	< 30
Optional Stacker Volume (µL)*	3	15	40	100	200	10
Centrifuge Speed (× g)	1000	1500	1000	1000	1000	1000
	Storage Solution Removal	1	1	2	2	2
Centrifugation Time (min)	Wash 1	1	1	2	2	2
	Wash 2	1	1	2	2	2
	Wash 3	1	1	2	2	2
	Sample Recovery	2	2	2	2	2

*When using the indicated sample volumes, use a stacker to achieve the highest recovery. The stacker is a volume of wash/equilibration buffer applied after the added sample has completely entered the desalting resin bed.

Troubleshooting

Problem	Possible Cause	Solution
Sample or buffer does not flow through resin	Centrifugation problem	Ensure that centrifuge is in proper working condition
		Ensure bottom closure is removed
		Ensure top cap is loosened
Sample contamination	Improper sample loading	Apply sample directly to center of the resin bed; touch tip to resin to expel all sample
		Avoid contact with sides of column
	Improper centrifugation	For fixed-angle rotors, place column in the same orientation each time and do not exceed recommended centrifuge speed
Do not exceed recommended centrifugation speed or time		
Low yield	Sample was not completely in solution before adding to the column	Centrifuge sample at $14,000 \times g$ for 10 minutes before adding to the column
	Portion of protein still remaining in spin column	Use a stacker to recover more protein (for most samples, the majority of protein is recovered without a stacker)
	Protein precipitated in equilibration buffer	Check for protein solubility in the final buffer or solution
	Protein bound to resin matrix	Use alternative resin, such as Polyacrylamide Spin Desalting Columns (see Related Thermo Scientific Products section)
Recovered protein or sample is dilute	Wash/equilibration buffer was not adequately removed	Before adding the sample make sure the wash/equilibration buffer was adequately removed by centrifugation (i.e., column appears uniformly white with no solvent streaks)

Related Thermo Scientific Products

89849 Pierce Polyacrylamide Spin Desalting Columns, 7K MWCO, 0.7mL, 25 columns

89862 Pierce Polyacrylamide Spin Desalting Columns, 7K MWCO, 0.7mL, 50 columns

Products are warranted to operate or perform substantially in conformance with published Product specifications in effect at the time of sale, as set forth in the Product documentation, specifications and/or accompanying package inserts ("Documentation"). No claim of suitability for use in applications regulated by FDA is made. The warranty provided herein is valid only when used by properly trained individuals. Unless otherwise stated in the Documentation, this warranty is limited to one year from date of shipment when the Product is subjected to normal, proper and intended usage. This warranty does not extend to anyone other than Buyer. Any model or sample furnished to Buyer is merely illustrative of the general type and quality of goods and does not represent that any Product will conform to such model or sample.

NO OTHER WARRANTIES, EXPRESS OR IMPLIED, ARE GRANTED, INCLUDING WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR NON INFRINGEMENT. BUYER'S EXCLUSIVE REMEDY FOR NON-CONFORMING PRODUCTS DURING THE WARRANTY PERIOD IS LIMITED TO REPAIR, REPLACEMENT OF OR REFUND FOR THE NON-CONFORMING PRODUCT(S) AT SELLER'S SOLE OPTION. THERE IS NO OBLIGATION TO REPAIR, REPLACE OR REFUND FOR PRODUCTS AS THE RESULT OF (I) ACCIDENT, DISASTER OR EVENT OF FORCE MAJEURE, (II) MISUSE, FAULT OR NEGLIGENCE OF OR BY BUYER, (III) USE OF THE PRODUCTS IN A MANNER FOR WHICH THEY WERE NOT DESIGNED, OR (IV) IMPROPER STORAGE AND HANDLING OF THE PRODUCTS.

Unless otherwise expressly stated on the Product or in the documentation accompanying the Product, the Product is intended for research only and is not to be used for any other purpose, including without limitation, unauthorized commercial uses, in vitro diagnostic uses, ex vivo or in vivo therapeutic uses, or any type of consumption by or application to humans or animals.

Current product instructions are available at thermofisher.com. For a faxed copy, call 800-874-3723 or contact your local distributor.

© 2016 Thermo Fisher Scientific Inc. All rights reserved. Unless otherwise indicated, all trademarks are the property of Thermo Fisher Scientific Inc. and its subsidiaries. Printed in the USA.