



Empore™ StageTips

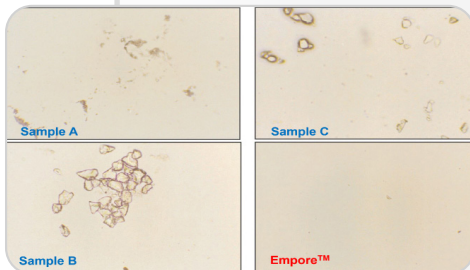
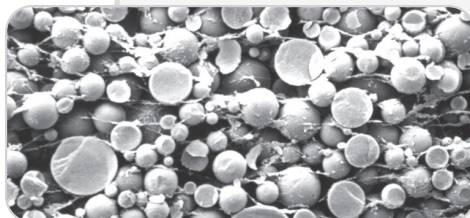
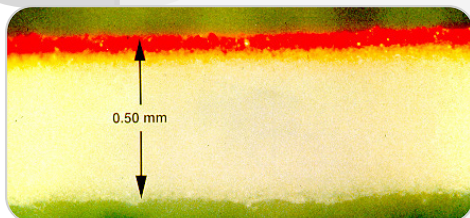
- Solid Phase Extraction Micropipette Tips for Peptide and Protein Applications

Introduction

Empore solid phase extraction (SPE) products were originally developed in 1989 by the 3M Company producing high quality disks, cartridges, 96-well plates, and StageTips. As of 2019, CDS Analytical has become the proud new home of the Empore product line. With a new clean room at our facility in Oxford, PA, CDS Analytical continues to use the same formula and manufacturing process that brought users the historic quality of Empore products for more than 30 years.

Empore solid phase extraction products are produced by trapping sorbent particles within an inert matrix of an engineered polymer. The resulting particle loaded membrane, featuring sorbent particles in either a silica- or resin-based format, yields a more uniform and more densely packed particle bed than traditional loosely packed SPE products.

The resulting Empore product developed from our unique manufacturing process brings increased efficiency and reproducibility to SPE sample preparation methods.



Greatest Uniformity

Sorbent particles are packed uniformly in the Empore membrane providing superior extraction at high flow rates, making Empore excellent for high-throughput applications.

Highest Density

The high packing density of the Empore membrane reduces the distance between sorbent particles greatly improving extraction efficiency by eliminating the channeling effect.

Low Elution Volume

Sorbent particles are confined with the thin Empore membrane, which means less solvent is required for extraction, reducing or eliminating evaporation steps and reducing total solvent usage.

Less Fine Particles

The densely packed Empore membrane greatly reduces free fine particles resulting in a clean extract for analysis.

MADE IN THE USA



ISO-9 Clean Room

Empore products are manufactured at our brand new, GMP-compliant clean room at our facility in Oxford, Pennsylvania.

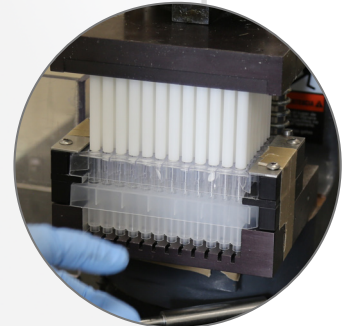
Our facility is equipped with the cutting-edge instruments needed to perform quality control and assurance to ensure that each product maintains the historic high quality of the Empore line.



100% Visual Inspection



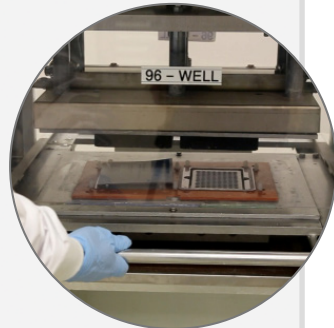
QA/QC Analytical Lab



Automated Production



Highest Quality Chemicals



Precision Tooling



100% Flow Rate Testing

StageTips

Empore™ Solid Phase Extraction (SPE) micropipette StageTips are now available pre-packed with the Empore™ membrane. For almost 20 years, the Empore™ membrane has been the SPE product of choice to pack into micropipette tips for rapid, small-volume desalting and fractionation of peptides and proteins. Pre-packed StageTips now offer researchers a much needed alternative to arduous and monotonous manual packing procedures.

- 1 10 μ L and 200 μ L volume micropipette tips
- 2 Chemically resistant, low-binding polypropylene material
- 3 Standard 2-layers of Empore™ membrane for single phase products.
- 4 Standard package size containing 96 micropipette tips
- 5 Same Empore™ membrane used in the original StageTips



Product Listings:

Sorbent	Size (μ L)	Quantity	Product Number	Catalog Number
C18-HD	200	96 / 960	70-2019-1001-3	6091
C18-HD (3 layers)	200	96 / 960	70-2019-1018-2	6108
C8-HD	200	96 / 960	70-2019-1002-5	6092
SDB-XC	200	96 / 960	70-2019-1003-7	6093
SDB-RPS	200	96 / 960	70-2019-1004-9	6094
SAX	200	96 / 960	70-2019-1005-2	6095
SCX	200	96 / 960	70-2019-1006-4	6096
C18 / SCX	200	96 / 960	70-2019-1007-6	6097
C18 / SCX / C18	200	96 / 960	70-2019-1008-8	6098
C18-HD (3layers)	10	96 / 960	70-2019-1018-2	6108

SAX - Strong anion exchange
 SCX - Strong cation exchange
 E3 - Proteomics sample preparation

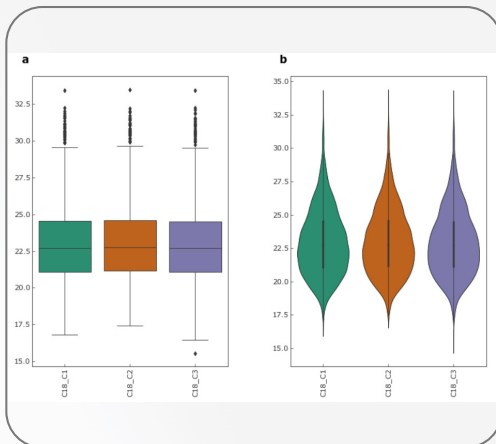
Product Features:

- Save Time - Get StageTips pre-packed to avoid manual preparation
- Reproducibility - Standardized packing methods to avoid tip-to-tip variability encountered during manual packing.
- Universal Compatibility - Chemically resistant to organic solvents and basic and acidic conditions for all protein and peptide desalting / fractionation applications.
- Save Money - Order StageTips by the case.

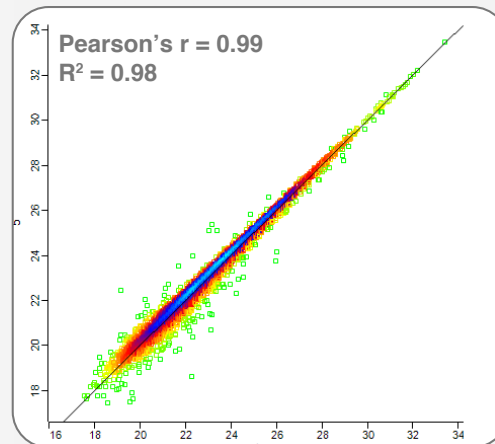
Technical Specifications:

Reverse Phase Phases	C18, C8, SDB-XC
Mixed-Mode Phases	SDB-RPS
Ion Exchange Phases	Anion Exchange (SAX), Cation Exchange (SCX)
Volume	200 μ L, 10 μ L
Layers of Empore™ Membrane	2 (for single phase StageTips), 3
Thickness per Layer	0.5 mm, 0.5 mm
Diameter	1.194 mm, 0.95mm
Capacity	40 μ g (silica-based); 80-100 μ g (polymer-based) estimated 25 μg(C18-HD)

Tip-to-Tip Reproducibility: Reproducibility Testing for C18 StageTips HeLa Cell Lysate Samples

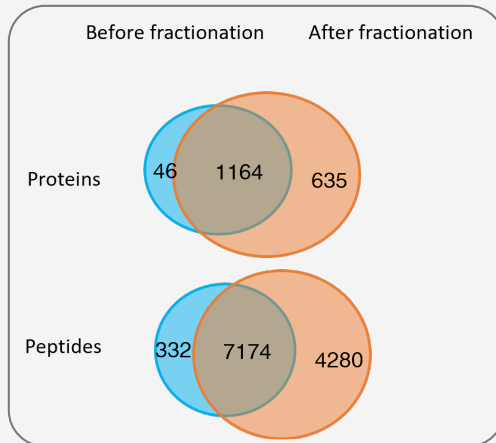


Box plots for C18 StageTips (n = 3) showing tip-to-tip consistency for peptides detected.

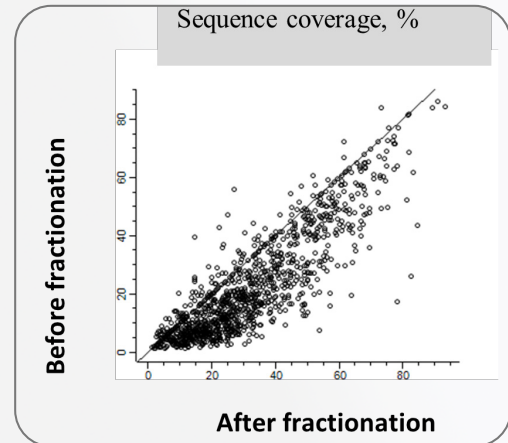


Line plots for two C18 StageTips for peptides detected. The high R^2 value shows high reproducibility.

Example Application: High pH Peptide Fractionation of HeLa Cell Lysate



Number of proteins and peptides identified before and after high-pH fractionation.



Percent sequence coverage of protein after high-pH fractionation.

General Desalting Protocol:

A. Materials and Equipments.

- (1) Empore C18 StageTips (catalog No. 6091; PN 98-0604-1001-3).
- (2) Pipette tip adaptors.
- (3) Microtubes: Axygen Maxymum Recovery tubes (1.5 mL and 2.0 mL).
- (4) Solutions:

Activation buffer: 100% methanol.

Wash and equilibration buffer: 0.5% acetic acid (HAc) in water.

Elution buffer I: 0.5% acetic acid, 60% acetonitrile (ACN) and 40% water.

Elution buffer II: 0.5% acetic acid, 80% acetonitrile and 20% water.

B. Experimental Procedures.

- (1) Sample pre-treatment:

Re-dissolve dried peptide sample with 200 μ L Wash and equilibration buffer ($H_2O/0.5\%HAc$), vortex for 10~15min, then spin @13,000 rpm for 3-5 min.

- (2) Put adaptor onto tip, and put the whole set into 2-mL tube; It is recommended to label each tip at this stage of the procedure.

- (3) Activation I: Load 200 μ L methanol, spin @ 4000 rpm for 1~2min.

- (4) Activation II: Load 200 μ L 80% ACN/0.5% HAc, spin 4000 rpm for 1~2min.

- (5) Discard all the liquid in the collection tube.

- (6) Equilibration: Load 200 μ L $H_2O/0.5\% HAc$, spin 4000 rpm for 1~2min.

- (7) Discard all the liquid in the collection tube.

- (8) Loading: Load 200 μ L sample into tip, spin 4000 rpm for 1~2min; collect the flow through and reload onto tip, spin again; repeat this step three times. Depending on the amount of salts, spin time may vary (2~5 min).

- (9) Washing: Load 200 μ L $H_2O/0.5\% HAc$, spin 4000 rpm for 2~3min; this step may repeat 2~3 times. Also, depending on the salt amount, the spin time may vary (2~4 min).

- (10) Transfer tips to new collection tubes. It is recommended to label the new collection tubes.

- (11) Elution I: load 200 μ L 60% ACN/0.5% HAc, spin 4000 rpm for ~2min;

- (12) Elution II: load 200 μ L 80% ACN/0.5% HAc, spin 4000 rpm for ~2min; repeat this time one more time.

- (13) Discard tips. Poke a hole on cap, snap freeze samples on dry ice (for 5-10 min); dry samples on a SpeedVac.

StageTips

Empore Extraction StageTips

Empore SKU	Description	Size (μL)	2024 Unit Price Per Tip	
			PK*	CS**
70-2019-1001-3	C18-HD	200	\$1.33	\$1.00
70-2019-1002-5	C8-HD	200	\$1.33	\$1.00
70-2019-1003-7	SDB-XC	200	\$1.44	\$1.08
70-2019-1004-9	SDB-RPS	200	\$1.44	\$1.08
70-2019-1005-2	SAX	200	\$1.44	\$1.08
70-2019-1006-4	SCX	200	\$1.44	\$1.08
70-2019-1007-6	C18 / SCX	200	\$1.54	\$1.16
70-2019-1008-8	C18 / SCX / C18	200	\$1.75	\$1.31
70-2019-1018-2	C18-HD (3 layers)	200	\$1.80	\$1.35
70-2019-1018-2	C18-HD (3 layers)	10	\$1.80	\$1.35

*Pack (PK) contains 96 tips.

**Case (CS) contains 960 tips.

Check our latest price at www.cdsanalytical.com/empore

CDS Analytical



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