

**Immunocapture**



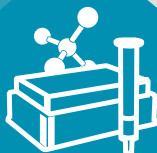
**$\beta$ -Glucuronidase  
Removal**



**Supported  
Liquid Extraction**



**Solid Phase  
Extraction**



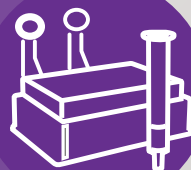
**Filtration**



**QuEChERS**



**Phospholipid Removal +  
Protein Precipitation**



**Protein  
Precipitation**

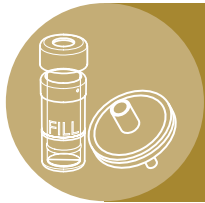


# **SAMPLE PREPARATION MADE SIMPLE**

Selection and Users Guide

# Choose Your Sample Preparation Solution

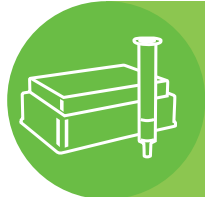
Sample preparation is crucial in achieving desired LC or GC analytical results. Sample matrix effects can result in an array of interferences which can lead to poor chromatography as well as instrumentation drawbacks, hindering your approach and goal for the analysis.



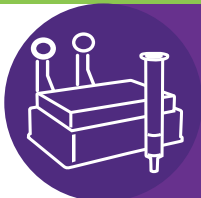
Filtration



Protein  
Precipitation



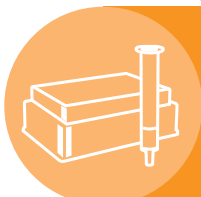
$\beta$ -Glucuronidase  
Removal



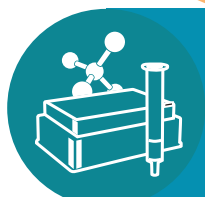
Phospholipid Removal  
+  
Protein Precipitation



QuEChERS



Supported  
Liquid Extraction



Solid Phase  
Extraction



Immunocapture



A mechanical or physical operation which is used for the separation of solids from fluids by interposing a medium through which only the fluid can pass.

**pp. 4-11**

Proteinaceous samples require a protein precipitation step to promote protein aggregation which allows their removal from the solution/sample.

**pp. 12-15**

A  $\beta$ -Glucuronidase enzyme removal method to clean-up hydrolyzed urine from samples in less than 1 minute, ideal for rapid drug testing.

**pp. 16-19**

Biological samples require the removal of endogenous phospholipids and proteins as they are a primary source of ion suppression and resulting matrix effects.

**pp. 20-25**

A streamlined approach that makes it easier and less expensive for analytical chemists to examine residues in food. The name is a portmanteau word formed from "Quick, Easy, Cheap, Effective, Rugged, and Safe".

**pp. 26-31**

Supported Liquid Extraction (SLE) is a FASTER, EASIER, and MORE RELIABLE way to perform liquid-liquid extraction. Unwanted interferences can be removed such as proteins, salts and phospholipids.

**pp. 32-38**

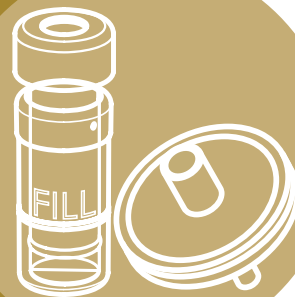
A separation process that is used to remove compounds from a mixture, based on their physical and chemical properties. Analytical laboratories use solid phase extraction to concentrate and purify samples for analysis from a wide variety of matrices.

**pp. 39-66**

Paramagnetic beads used to capture streptavidin or other target analytes in order to perform a clean-up of biologics.

**pp. 67-69**

# Syringe Filters for LC/GC



## Filtering your sample eliminates contaminants prior to injection onto your column or system

### Filtration can:

- Clean samples for more consistent, reproducible results
- Extend column lifetime
- Reduce back pressure (caused by contaminant and particulate build-up at the head of the column)
- Save your system's rotor seals, valve stators, and several other moving components from unnecessary wear and damage that can result from undissolved sample particulates grinding away at the system components

[www.phenomenex.com/Phenex](http://www.phenomenex.com/Phenex)



### Simplify your Syringe Filters!

#### Two-Step Vials for Filtration and Analysis

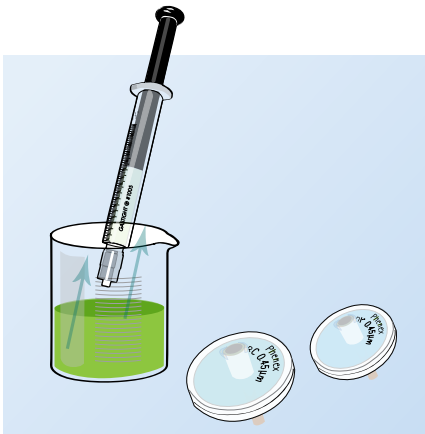
Verex Filter Vials combines syringe filter and vial technology, eliminating the need for separate syringes, syringe filters, vials, and cap/septa, allowing you to reduce lab waste and simplify your workflow.

[www.phenomenex.com/VerexFV](http://www.phenomenex.com/VerexFV)

# How to Use Syringe Filters



## Phenex Instructions



### Loading

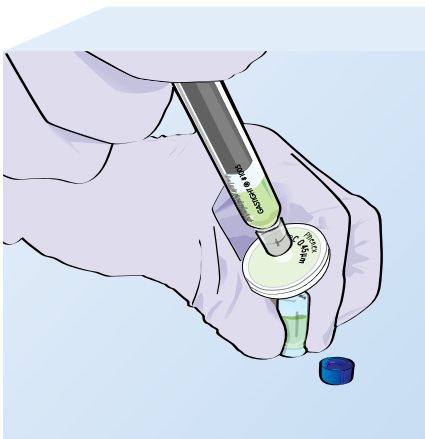
- 1 Fill a syringe barrel with the liquid sample. Allow a small amount of air (approximately 10% of the sample volume) to enter the syringe. The air is used as a purge to minimize fluid retention when expelling the sample from the syringe (Step 3 below).



### Assembly

- 2 Twist the luer lock end of the filter securely onto the syringe. (Caution: Do not use syringes without a matching luer lock, otherwise the pressure applied may cause the filter to come off unexpectedly.)

Refer to page 9 to select the correct syringe filter.



### Filtration

- 3 Apply gentle pressure to the syringe plunger. (Caution: Small syringes can generate excessive pressures.) Push the liquid sample, as well as the remaining air, through the syringe filter to maximize sample recovery.

# Which Filter Membrane Is Right for Me?

Phenex syringe filters are offered in a variety of chemically compatible membranes that are ideal for any application. Proper membrane and size selection are the keys to choosing the best product to maintain the integrity of your sample components as well as to protect your system from particulate contamination.



## Select your filter in three EASY steps:

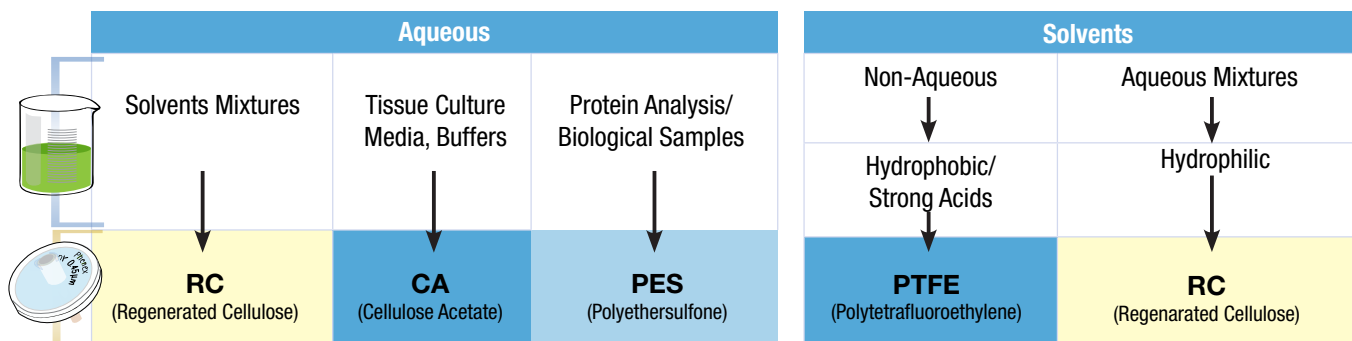
### 1. What is your sample volume?

< 2 mL Sample Volume	2 to 10 mL Sample Volume	11 to 100 mL Sample Volume
4 mm Diameter	15 mm Diameter	25 - 28 mm Diameter

### 2. What is your LC column ID?

$\geq 3 \mu\text{m}$	$< 3 \mu\text{m}$	OR
0.45 $\mu\text{m}$	0.20 $\mu\text{m}$	Viscous samples such as serum, plasma, or other biological matrices. Solutions with high particulate load (e.g., some environmental or food and beverage applications).
		Glass Fiber Filter with 0.45 $\mu\text{m}$ membrane

### 3. What type of sample are you working with?





# Don't Forget!

## All-Plastic Disposable Syringes

- Use for all syringe filter applications
- Luer-lock outlet makes connection easy
- Capacities ranging from 3 to 20 mL
- Made of ultra-clean, high-purity plastic



## Most Popular Filter Membrane Options

RC (Regenerated Cellulose)	PTFE, Teflon® (Polytetrafluoroethylene)
For Aqueous and Mixed Organic Solutions	For 100% Organic Solutions
<ul style="list-style-type: none"> <li>• A broad range of aqueous and mixed-organic solutions</li> <li>• Fast-flow and ultra-low protein and non-specific binding characteristics</li> <li>• Broadly recommended as an excellent general purpose/high-performance sample filter for most applications</li> </ul>	<ul style="list-style-type: none"> <li>• Well-suited for the clarification of non-aqueous samples</li> <li>• Hydrophobic membrane, excellent for filtration of organic-based, highly acidic or basic samples and solvents</li> <li>• A hydrophobic membrane, that can be made hydrophilic by wetting with alcohol and then flushing with deionized water</li> </ul>

### Additional Syringe Filter Membranes

Membrane Types	Recommended Uses
<b>PES</b> (Polyethersulfone)	Polyethersulfone membranes exhibit very fast-flow and ultra-low protein binding characteristics. Phenex-PES membranes are typically broadly recommended for filtering critical biological samples, tissue culture media, additives and buffers.
<b>NY</b> (Nylon)	Nylon has inherent hydrophilic characteristics and works well for filtration of many aqueous and mixed-organic samples. In combination with a glass pre-filter (Phenex-GF/NY), this membrane is excellent for the filtration of particle-laden samples, such as foods and beverages, environmental, biofuels, and dissolution samples.
<b>CA</b> (Cellulose Acetate)	Cellulose Acetate (CA) membranes exhibit ultra-low protein binding and are broadly used in the filtration of biological samples. In combination with a glass pre-filter (Phenex-GF/CA), this membrane is excellent for filtration of tissue culture media, general biological sample filtration and clarification.
<b>GF</b> (Glass Fiber)	Glass Fiber (GF) filters are made of inert borosilicate glass and have a nominal 1.2µm pore size. They are commonly used with highly viscous samples or samples containing high concentrations of particulate matter (e.g., food analysis, biological samples, soil samples, fermentation broth samples, removal of yeasts, molds, etc.).
<b>PVDF</b> (Polyvinylidene Fluoride)	Hydrophilic PVDF membrane provides high flow rates and throughput, low extractables, and broad chemical compatibility. This membrane binds less protein than nylon or PTFE membranes.



**Syringe Filter Finder**  
Visit: [www.phenomenex.com/SyringeFilterFinder](http://www.phenomenex.com/SyringeFilterFinder)

## Recommendations Based on Your Industry



### Environmental

Water, wastewater, soil, sludge, and pollution control samples are especially challenging. No matter what the sample type, Phenex offers filtration products that meet your demanding requirements.

Recommended Filter: GF/NY

First Alternative: RC



### Pharmaceutical / Biotech

At every stage of the drug discovery process, target compounds must be isolated, purified, and prepared prior to testing. Sample complexity in DMPK work can be even more challenging. Difficult samples such as serum, urine, and other physiological fluids are easily filtered and clarified using Phenex syringe filters.

Biological Samples Recommended Filter: PES

First Alternative: RC



### Clinical / Toxicology

Removal of particulate matter to sub-micron levels is critical before any clinical sample is injected into an LC, GC, or mass spectrometer. At every stage of toxicology, samples must be prepared prior to testing. In today's fast-paced environment, rapid and simple sample preparation is a must. Phenex is designed for higher flow rates and throughputs than those of competing products.

Recommended Filter: RC

First Alternative: PES



### Food and Beverage

Food safety is more important than ever and lower detection limits are making analysis even more challenging. Accurate and reliable testing is critical to ensure food safety. Phenex filters are routinely used in preparation for analysis of pesticides, herbicides, fungicides, flavors, and fragrances. For samples with large amounts of particulate and/or large fibrous matter, use a glass fiber prefilter.

Recommended Filter: GF/NY

First Alternative: RC

## Other Applications:

Application / Sample*	Recommended Filter**	First Alternative
General GC and LC	RC	PTFE
Aggressive or Pure Organic Solvents	PTFE	RC
High Particulate Loads	GF/NY	GF + RC
Dissolution Testing	GF/NY	RC
Ion Chromatography	RC	PES
Trace Metals (ICP-MS, AAS)	RC	PES
Capillary Electrophoresis (CE)	RC	PES
Tissue Cultures, Media, Buffers	GF/CA	PES

\* Removal of high particulate matter with a glass fiber prefilter is critical before any drug, tox, or dirty environmental sample is filtered to ensure the highest syringe filter membrane performance.

\*\* For high load and particulate-laden samples you may consider placing a Glass Fiber (GF) prefilter, either integrated with the membrane as one unit (Phenex-GF/NY or -GF/CA) or in series with the membrane syringe filter of your choice.

Generally, 0.45µm porosity filters are used to remove particulates from samples and mobile phase solutions. For sterile-filtration, a 0.20µm porosity filter can be used.



Don't miss out on FREE samples!

Visit: [www.phenomenex.com/SyringeFilterFinder](http://www.phenomenex.com/SyringeFilterFinder)



# Ordering Information



Membrane Type/Size	4 mm Diameter for ≤ 2 mL sample volumes		15 mm Diameter for 2 – 10 mL sample volumes		25–30 mm Diameter for 11 – 100 mL sample volumes	
	Part No.	Unit	Part No.	Unit	Part No.	Unit
<b>0.20 µm</b>						
Phenex-RC (Regenerated Cellulose)	<a href="#">AF0-3203-12</a>	100/pk	<a href="#">AF0-2203-12</a>	100/pk	<a href="#">AF0-8203-12</a>	100/pk
	<a href="#">AF0-3203-52</a>	500/pk	<a href="#">AF0-2203-52</a>	500/pk	<a href="#">AF0-8203-52</a>	500/pk
Phenex-PES <sup>2</sup> (Polyethersulfone)	—	—	—	—	<a href="#">AF0-8208-12</a>	100/pk
	—	—	—	—	<a href="#">AF0-8208-52</a>	500/pk
Phenex-PTFE (Polytetrafluoroethylene)	<a href="#">AF0-3202-12</a>	100/pk	<a href="#">AF0-2202-12</a>	100/pk	<a href="#">AF0-1202-12</a>	100/pk
	<a href="#">AF0-3202-52</a>	500/pk	<a href="#">AF0-2202-52</a>	500/pk	<a href="#">AF0-1202-52</a>	500/pk
Phenex-NY (Nylon)	<a href="#">AF3-3207-12</a>	100/pk	<a href="#">AF0-2207-12</a>	100/pk	<a href="#">AF0-1207-12</a>	100/pk
	<a href="#">AF3-3207-52</a>	500/pk	<a href="#">AF0-2207-52</a>	500/pk	<a href="#">AF0-1207-52</a>	500/pk
Phenex-GF/NY <sup>1</sup> (Glass Fiber/Nylon)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a Nylon (NY) membrane. Excellent for filtration of particle-laden samples, such as foods and beverages, environmental, biofuels, and dissolution samples. Use less hand pressure to filter even the most difficult samples. Outlet connection is luer lock.				<a href="#">AF0-1A47-12</a>	100/pk
					<a href="#">AF0-1A47-52</a>	500/pk
Phenex-PVDF (Polyvinylidene Fluoride)	—	—	<a href="#">AF6-5206-12</a>	100/pk	<a href="#">AF6-6206-12</a>	100/pk
	—	—	<a href="#">AF6-5206-52</a>	500/pk	<a href="#">AF6-6206-52</a>	500/pk
Phenex-GF/PVDF (Glass Fiber/Polyvinylidene Fluoride)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a PVDF membrane. The hydrophilic PVDF membrane provides high flow rates and throughput, low extractables and broad chemical compatibility. This membrane binds less protein than nylon or PTFE membranes.				<a href="#">AF6-6C06-12</a>	100/pk
					<a href="#">AF6-6C06-52</a>	500/pk
Phenex-CA <sup>3</sup> (Cellulose Acetate)	—	—	—	—	<a href="#">AF0-8204-12</a>	100/pk
Phenex-GF/CA <sup>1,2,3</sup> (Glass Fiber/Cellulose Acetate)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a CA membrane. Excellent for filtration of tissue culture media, general biological sample filtration and clarification. Outlet connection is luer lock.				<a href="#">AF0-8A09-12</a>	100/pk
					<a href="#">AF0-8A09-52</a>	500/pk
<b>0.45 µm</b>						
Phenex-RC (Regenerated Cellulose)	<a href="#">AF0-3103-12</a>	100/pk	<a href="#">AF0-2103-12</a>	100/pk	<a href="#">AF0-8103-12</a>	100/pk
	<a href="#">AF0-3103-52</a>	500/pk	<a href="#">AF0-2103-52</a>	500/pk	<a href="#">AF0-8103-52</a>	500/pk
Phenex-PES <sup>2</sup> (Polyethersulfone)	—	—	—	—	<a href="#">AF0-8108-12</a>	100/pk
	—	—	—	—	<a href="#">AF0-8108-52</a>	500/pk
Phenex-PTFE (Polytetrafluoroethylene)	<a href="#">AF0-3102-12</a>	100/pk	<a href="#">AF0-2102-12</a>	100/pk	<a href="#">AF0-1102-12</a>	100/pk
	<a href="#">AF0-3102-52</a>	500/pk	<a href="#">AF0-2102-52</a>	500/pk	<a href="#">AF0-1102-52</a>	500/pk
Phenex-NY (Nylon)	<a href="#">AF3-3107-12</a>	100/pk	<a href="#">AF0-2107-12</a>	100/pk	<a href="#">AF0-1107-12</a>	100/pk
	<a href="#">AF3-3107-52</a>	500/pk	<a href="#">AF0-2107-52</a>	500/pk	<a href="#">AF0-1107-52</a>	500/pk
Phenex-GF/NY <sup>1</sup> (Glass Fiber/Nylon)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a Nylon (NY) membrane. Excellent for filtration of particle-laden samples, such as foods and beverages, environmental, biofuels, and dissolution samples. Use less hand pressure to filter even the most difficult samples. Outlet connection is luer lock.				<a href="#">AF0-1B47-12</a>	100/pk
					<a href="#">AF0-1B47-52</a>	500/pk
Phenex-PVDF (Polyvinylidene Fluoride)	—	—	<a href="#">AF6-5106-12</a>	100/pk	<a href="#">AF6-6106-12</a>	100/pk
	—	—	<a href="#">AF6-5106-52</a>	500/pk	<a href="#">AF6-6106-52</a>	500/pk
Phenex-GF/PVDF (Glass Fiber/Polyvinylidene Fluoride)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a PVDF membrane. The hydrophilic PVDF membrane provides high flow rates and throughput, low extractables and broad chemical compatibility. This membrane binds less protein than nylon or PTFE membranes.				<a href="#">AF6-6D06-12</a>	100/pk
					<a href="#">AF6-6D06-52</a>	500/pk
Phenex-GF/CA <sup>1,2,3</sup> (Glass Fiber/Cellulose Acetate)	An integrated syringe filter unit containing an inert borosilicate glass fiber prefilter and a CA membrane. Excellent for filtration of tissue culture media, general biological sample filtration and clarification. Outlet connection is luer lock.				<a href="#">AF0-8B09-12</a>	100/pk
					<a href="#">AF0-8B09-52</a>	500/pk
<b>1.20 µm</b>						
Phenex-GF <sup>1,2</sup> (Glass Fiber)	Prefiltration of heavily contaminated or highly viscous samples. When used in-line preceding a membrane filter, clogging of the membrane filter is prevented and sample clean up is optimized. Outlet connection is luer lock.				<a href="#">AF0-8515-12</a>	100/pk
					<a href="#">AF0-8515-52</a>	500/pk

- Glass fiber filters are 28mm diameter and made of borosilicate. They will remove 90 % of all particles > 1.2µm.
- Housing material is methacrylate butadiene styrene (MBS) polymerisate. Also known as Cyrolite®.
- Cellulose acetate is surfactant-free.

Above syringe filters are non-sterile. Housing is made of medical-grade polypropylene (PP). Luer lock inlet/slip outlet connections unless otherwise indicated. Additional dimensions and membrane types are available, including sterile filters. Please contact your local Phenomenex technical consultant or distributor for availability or assistance.



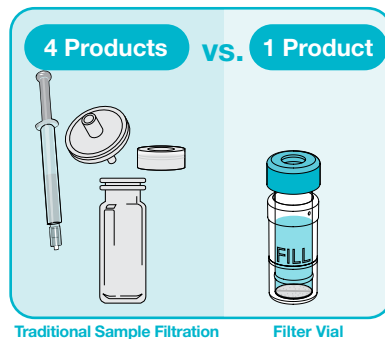
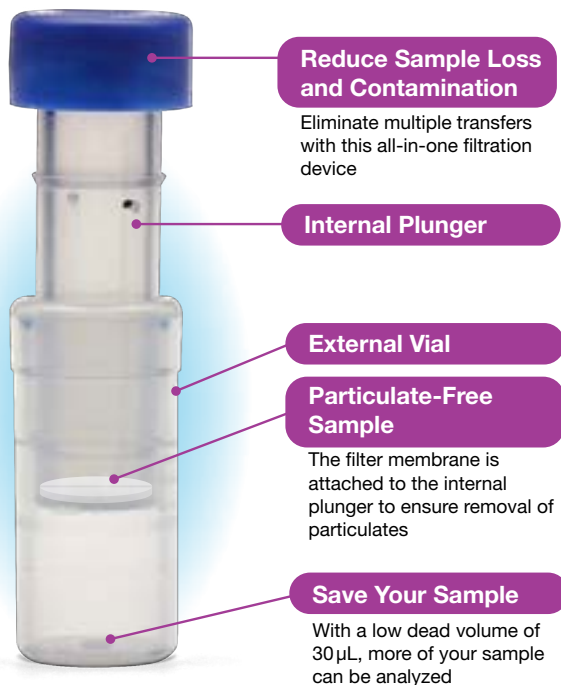
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[www.phenomenex.com/behappy](http://www.phenomenex.com/behappy)

# Reduce 4 Products to 1: Verex Filter Vials



Verex Filter Vials combines syringe filter and vial technology, eliminating the need for separate syringes, syringe filters, vials, and cap/septa, allowing you to reduce lab waste and simplify your workflow.



**Verex Filter Vial Specifications**

- Dimensions: 12 x 32 mm
- Vial material: Polypropylene
- Cap: 11 mm snap-top cap
- Septa: PTFE/Silicone preSlit
- Filtering capacity: 450  $\mu$ L
- Dead-volume: 30  $\mu$ L

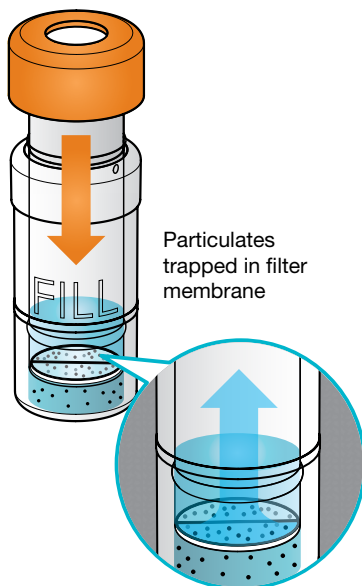
Verex Filter Vials are an easy two-step sample preparation device that consists of two parts: an external vial to be filled with sample and an internal plunger with a filtration membrane and cap with a pre-slit septa.

## How to Use Filter Vials

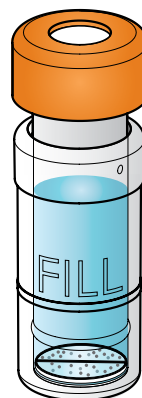
**1** The sample is placed in the external vial using a pipette or syringe.



**2** By compressing the internal plunger, the sample is pushed through the membrane and filtered.













Now the Verex Filter Vial is ready to be placed into the autosampler!



Simply dispense your sample and filter!

# Ordering Information

Description		Pore Size	Part No.	Unit
<b>Verex Filter Vial-RC</b> (Regenerated Cellulose)		0.20 µm	<a href="#">ARO-F103-12</a>	100/pk
		0.45 µm	<a href="#">ARO-F203-12</a>	100/pk
<b>Verex Filter Vial-PTFE</b> (Polytetrafluoroethylene)		0.20 µm	<a href="#">ARO-F102-12</a>	100/pk
		0.45 µm	<a href="#">ARO-F202-12</a>	100/pk
<b>Verex Filter Vial-NY</b> (Nylon)		0.20 µm	<a href="#">ARO-F107-12</a>	100/pk
		0.45 µm	<a href="#">ARO-F207-12</a>	100/pk
<b>Verex Filter Vial-PES</b> (Polyethersulfone)		0.20 µm	<a href="#">ARO-F108-12</a>	100/pk
		0.45 µm	<a href="#">ARO-F208-12</a>	100/pk
<b>Verex Filter Vial-PVDF</b> (Polyvinylidene Fluoride)		0.20 µm	<a href="#">ARO-F106-12</a>	100/pk
		0.45 µm	<a href="#">ARO-F206-12</a>	100/pk



**BE-HAPPY™**  
GUARANTEE

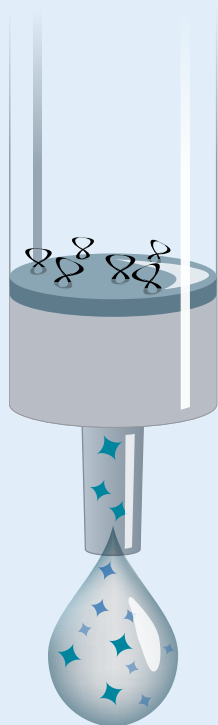
Your happiness is our mission. Take 45 days to try our products. If you are not happy, we'll make it right.

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# Protein Precipitation



**Protein precipitation is a quick and easy way to remove proteins from samples using an organic solvent or a salt**



- Typically used with plasma, whole blood, and other proteinaceous biological samples
- Proteins decrease HPLC/UHPLC column lifetime and can interfere with MS detector sensitivity, compromising reliable results
- Fast, easy protocol: Perform precipitation and filtration sequential in the same plate.

**[www.phenomenex.com/Impact](http://www.phenomenex.com/Impact)**

# Rapid Protein Precipitation Without the Complications



## Fast Analysis

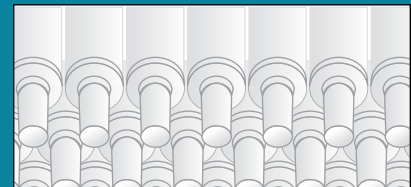
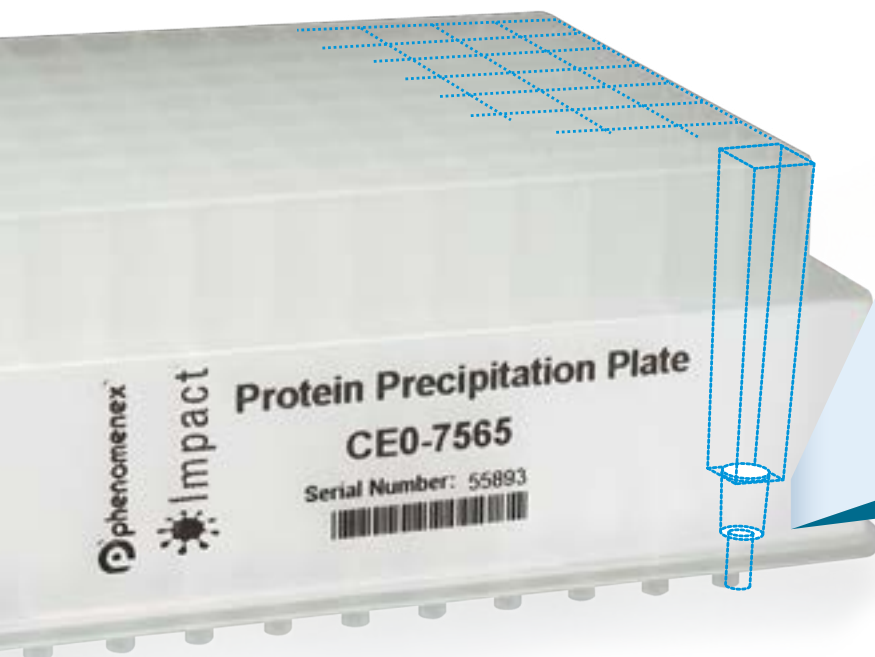
- Save time and increase efficiency by performing precipitation and filtration sequentially in the same plate
- Fast, easy to follow protocol; clean 96 samples in under 15 minutes
- Automatable process for higher productivity

## Reliability

- Filtering instead of pelleting precipitated protein ensures clean samples without additional transfer steps
- Avoid injecting protein onto your column resulting in longer column lifetime and improved chromatography

## No More Filtrate Transfer Steps

- No manual or automated filtrate transfer steps required
- Reduce errors and risk of contamination



### Solvent Shielding Technology™

Specially treated filters effectively hold organic solvent and trap protein precipitates for up to 25 minutes, allowing for direct in-well precipitation upon sample addition. The precipitate is then filtered out via vacuum, centrifuge or positive pressure resulting in a clean, protein depleted extract.



See How Impact Works  
Visit: [www.phenomenex.com/impact](http://www.phenomenex.com/impact)

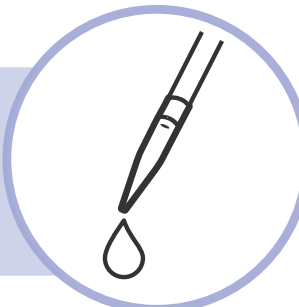
# One Simple Method!

## 4 Quick Steps

**STEP 01**

**Dispense\***


Organic solvent into the wells of the Impact plate in a volume of 3 - 4x the volume of the intended plasma or tissue homogenate sample.



**STEP 02**

**Add**


Plasma or tissue homogenate directly and forcefully into the organic solvent, maintain a final ratio of 3:1 to 4:1 organic solvent sample.



**STEP 03**

**Vortex†**

2 minutes at maximum possible speed, taking care not to allow solvent spillage. Sample can sit for up to 25 minutes with Solvent Shielding Technology™



**STEP 04**

**Filter**

**Centrifuge**


Place the Impact plate on top of a collection plate and centrifuge at 500 g for 5 minutes or until filtrate is collected.

**Vacuum**

Place the Impact plate onto a suitable 96-well sample manifold or robot. Ensure that a 96-well collection plate is positioned inside the manifold or under the Impact plate. Vacuum at 2 - 7 inch Hg for up to 5 minutes or until filtrate is collected.

**Positive Pressure**

Place the Impact plate on top of a collection plate and apply 2 - 5 psi using a positive pressure manifold.



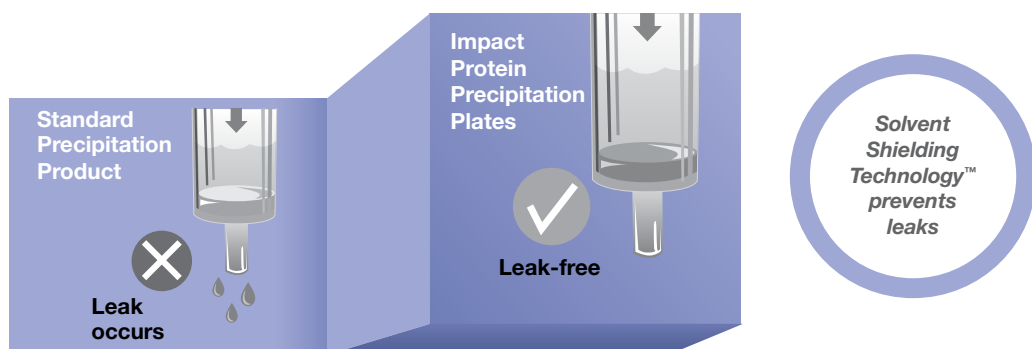
\* A 3:1 v/v ratio of organic solvent to biological sample will dilute your sample less. In contrast, a 4:1 v/v ratio of organic solvent to biological sample will ensure a more complete precipitation. A 4:1 v/v ratio is recommended when using methanol.

† When used with a liquid-handling instrument or automation, aspirate/dispense cycles may be used to promote in-tip mixing and precipitation. This will ensure complete precipitation and filtration. Vortexing is not necessary when in-tip precipitation is performed.

# Designed to Eliminate the Problems of Conventional Filtration Products

## Leak-Free Protein Precipitation

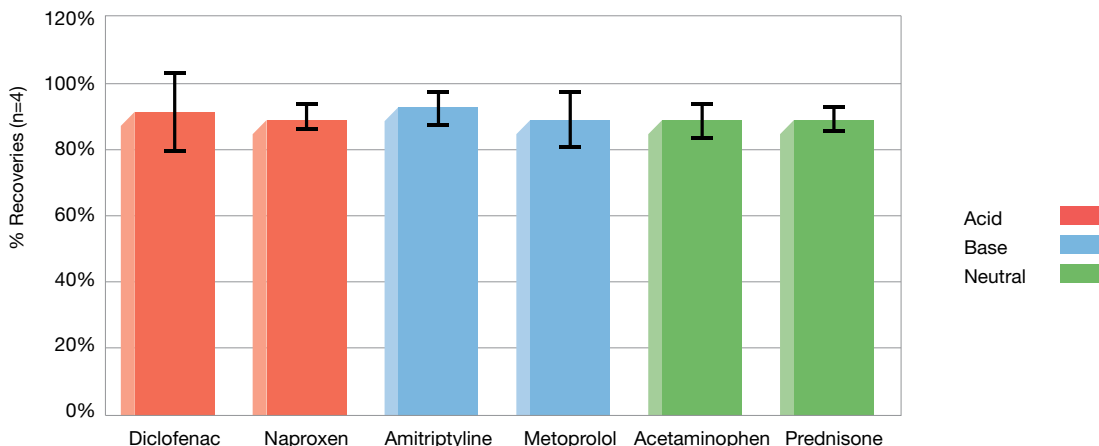
The oleophobic filters of the Impact plates effectively hold organic solvent allowing the precipitation reaction to occur inside the plate. Unlike conventional protein precipitation products, Impact will not leak solvent or sample until force is applied resulting in a clean precipitation.



Can retain acetonitrile with no leaks for up to 25 minutes

## High Recoveries of Acids, Bases, and Neutrals

Non-specific binding of analytes on the membrane surface leads to reduced analyte recovery. Impact has specially treated filters, which will not bind target analytes resulting in maximized recovery.



## Ordering Information

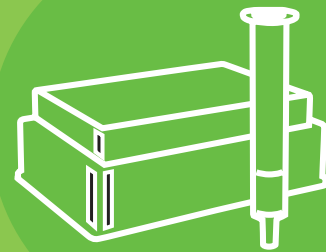
Part No.	Description	Unit
<b>Impact Precipitation Products</b>		
CE0-7565	Impact Protein Precipitation, Square Well, Filter Plate, 2 mL	2/pk
CE0-7566	Impact Protein Precipitation, Square Well, Long Drip, Filter Plate, 2 mL	2/pk
<b>Impact Starter Kit for Protein Precipitation</b>		
CE0-8201	Impact Protein Precipitation Plate (2 ea) Collection Plate 2 mL (2 ea) Sealing Mat, Santoprene™ (2 ea)	ea

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# $\beta$ -Glucuronidase Removal



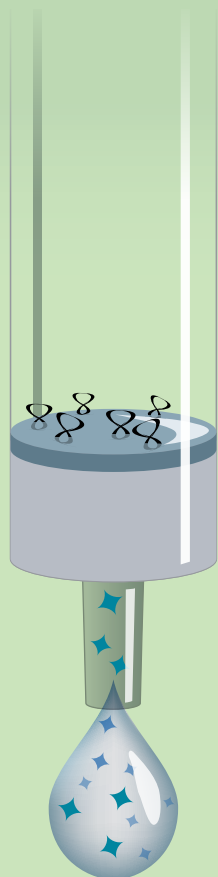
Urine that has been hydrolyzed using  $\beta$ -Glucuronidase contains a large enzyme that can ruin LC column lifetimes and increase MS maintenance, costing labs time and more money.

- Easy and quick method for removing  $\beta$ -Glucuronidase
- Remove large interferences and increase sensitivity better than dilute-and-shoot
- Save LC columns from premature death and MS systems from excessive downtime and maintenance.

[www.phenomenex.com/BetaGone](http://www.phenomenex.com/BetaGone)

**Now with In-Well Hydrolysis Capabilities!**

**Save time on transfer steps and reduce consumable costs with  $\beta$ -Gone Plus 96-Well Plates.**





# Clean-up Hydrolyzed Urine in Under 1 Minute



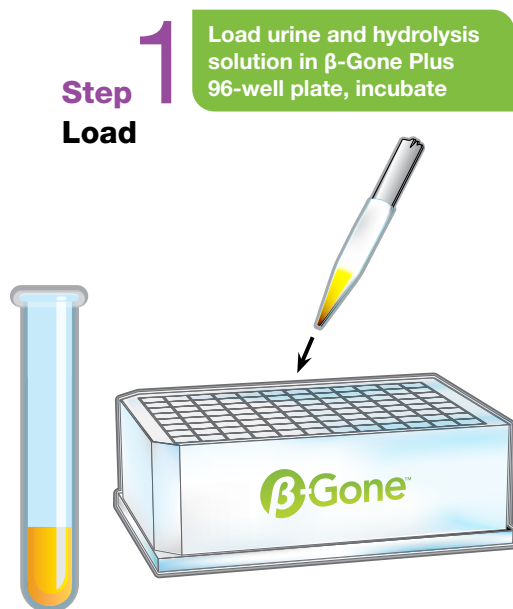
In two steps, ensure that your samples are free of  $\beta$ -Glucuronidase

## No Method Development

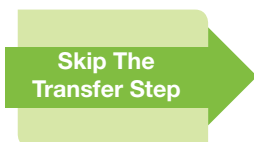
- Load hydrolyzed urine onto plate or tube and apply vacuum, positive pressure, or centrifuge.
- Collect clean samples for HPLC/UHPLC analysis.
- Save LC columns from premature death and MS systems from excessive downtime and maintenance.

## No Additional Time

- A better clean up than Dilute-and-Shoot, without adding any additional minutes to your work flow.
- This method can be automated to save even more time. Even faster than proterin precipitation or SPE!



## β-Gone Plus Protocol



Clean samples in under 1 minute!



Want to Learn More?  
Visit: [www.phenomenex.com/betagone](http://www.phenomenex.com/betagone)

# Don't Compromise Results

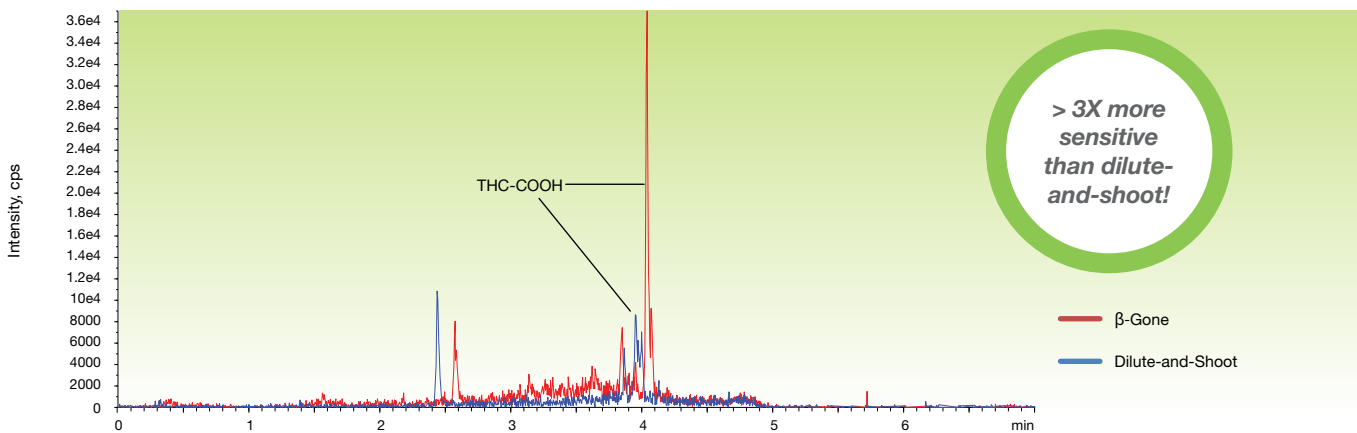
## High Recoveries with Increased Sensitivity



### High Recoveries for a Panel of Drugs

Analyte	% Recovery		Analyte	% Recovery	
	Non-Recombinant (natural) Enzyme	Recombinant Enzyme		Non-Recombinant (natural) Enzyme	Recombinant Enzyme
6-MAM	89	109	Methadone	104	83
7-Aminoclonazepam	87	76	Methamphetamine	105	96
alpha-Hydroxylprazolam	96	93	Methylphenidate	108	78
Alprazolam	101	80	Morphine	100	84
Amitriptyline	103	77	Naloxone	93	109
Amphetamine	99	92	Norbuprenorphine	110	89
Benzoylcegonine	99	110	Nordiazepam	85	85
Buprenorphine	104	91	Norfentanyl	109	79
Carisoprodol	95	75	Norhydrocodone	113	95
Citalopram	106	95	Noroxycodone	106	95
Codeine	99	97	Nortriptyline	101	99
Cotinine	114	96	O-Desmethyltramadol	107	110
Diazepam	100	78	Oxazepam	90	84
EDDP	106	84	Oxycodone	99	90
Fentanyl	105	79	Oxymorphone	94	90
Fluoxetine	105	94	Paroxetine	102	90
Gabapentin	97	88	PCP	102	65
Hydrocodone	104	93	Pregabalin	102	86
Hydromorphone	99	95	Ritalinic Acid	95	100
Imipramine	107	90	Tapentadol	106	85
Lorazepam	91	85	Temazepam	93	97
MDA	102	92	THC-COOH	70	98
MDEA	106	89	Tramadol	107	92
MDMA	104	91	Zolpidem	106	81
Meperidine	102	89	Zolpidem4carboxy	96	88
Meprobamate	93	73			

### Increase Your Sensitivity: β-Gone vs. Dilute-and-Shoot



Column: Kinetex™ 2.6µm Biphenyl  
 Dimensions: 50 x 2.1 mm  
 Part No.: [00B-4622-AN](#)

Mobile Phase: A: 0.1 % Formic acid in Water  
 B: 0.1 % Formic acid in Acetonitrile

Gradient: Time (min) % B  
 0.0 5  
 3.0 95  
 4.0 95  
 4.1 5  
 Flow Rate: 500 µL/min

Temperature: Ambient  
 Detection: MS/MS (SCIEX® API 4000™)

**β-Gone Procedure:** To 200 µL spiked urine (spiked at 100 ng/mL), add 133 µL 0.1 % Formic acid in Methanol. Pass through β-Gone tube or 96-well plate and collect eluent.

**Dilute-and-Shoot Procedure:** Dilute spiked urine (spiked at 100 ng/mL) 10-fold with 0.1 % Formic acid in Water.

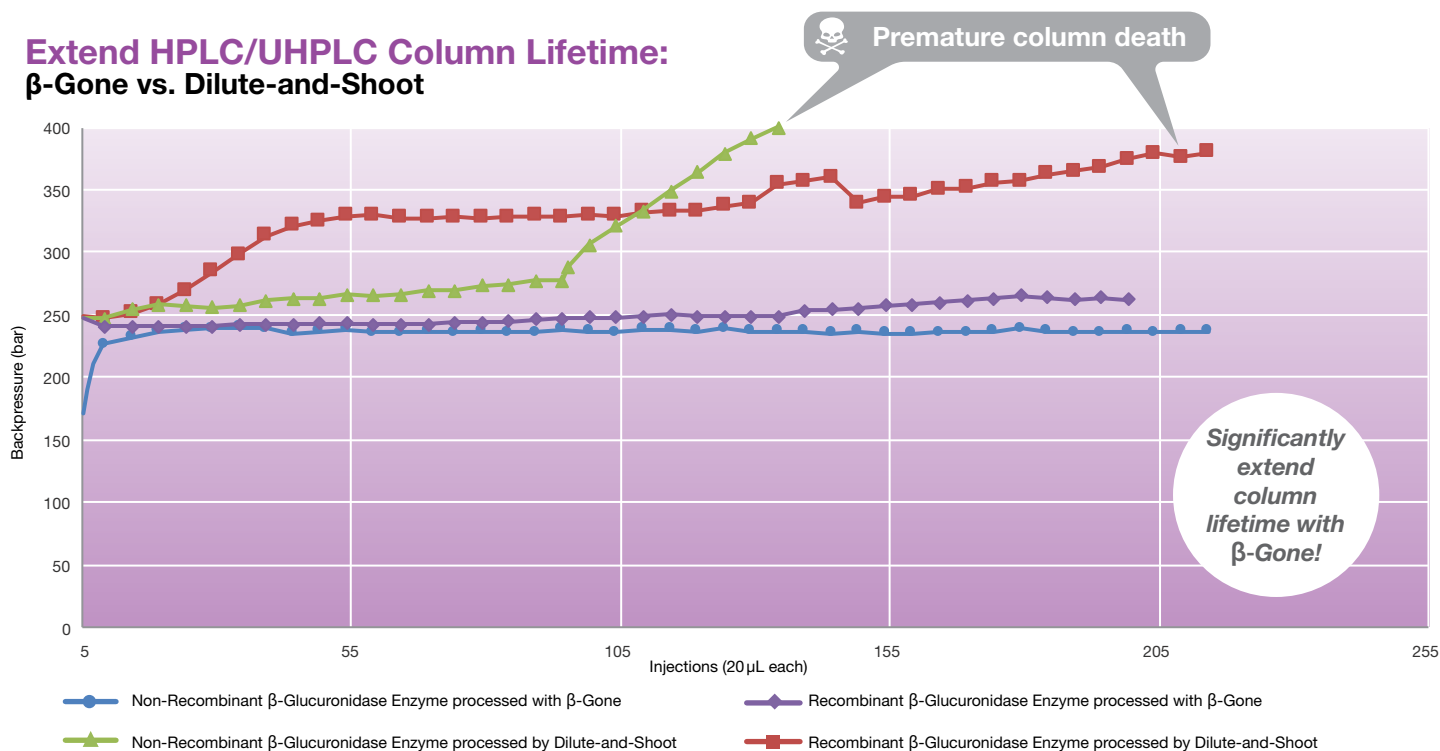
App ID 23627

# Save Your LC Columns

## Don't Ruin Your Column by Injecting Proteins



### Extend HPLC/UHPLC Column Lifetime: β-Gone vs. Dilute-and-Shoot



### Ordering Information

Part No.	Description	Unit
<a href="#">8B-S139-TAK</a>	1 mL Tubes, Recombinant Enzyme	100/Box
<a href="#">8B-S322-DAK</a>	1 mL Tubes, Non-Recombinant Enzyme	100/Box
<a href="#">8E-S139-TGA</a>	96 Well-Plate, Recombinant Enzyme	1/Box
<a href="#">8E-S322-DGA</a>	96 Well-Plate, Non-Recombinant Enzyme	1/Box
<a href="#">8N-S323-TUK</a>	2 mL Centrifuge Tubes, Recombinant and Non-Recombinant Enzyme	100/Box
<a href="#">8E-S323-UGA</a>	96-Well Plate Plus 60 mg/well, Recombinant/Non-recombinant Enzyme	1/Box



### Accessories

Part No.	Description	Unit
<b>Collection Plates (deep well, polypropylene)</b>		
<a href="#">AHO-7192</a>	96-Well Collection Plate 350 μL/well	50/pk
<a href="#">AHO-7193</a>	96-Well Collection Plate 1 mL/well	50/pk
<a href="#">AHO-7194</a>	96-Well Collection Plate 2 mL/well	50/pk
<a href="#">AHO-8635</a>	96-Well Collection Plate, 2 mL Square/Round-Conical	50/pk
<a href="#">AHO-8636</a>	96-Well Collection Plate, 2 mL Round/Round, 8 mm	50/pk
<a href="#">AH1-7025</a>	96-Well Collection Plate, 1 mL/well Round, 7 mm	50/pk
<a href="#">AHO-9332</a>	96-Well Collection Plate, 1.2 mL/well Round Well Round Bottom	50/pk
<a href="#">AHO-9333</a>	96-Well Collection Plate, 0.5 mL/well V-Bottom, 7 mm Sterile	50/pk
<a href="#">AHO-9341</a>	96-Well Collection Plate, 0.5 mL/well Conical Bottom 7 mm	50/pk
<a href="#">AH1-7036</a>	96-Well Low-Bind Collection Plate, 2 mL/well Round Well Conical Bottom (glass lined)	120/pk
<b>Sealing Mats</b>		
<a href="#">AHO-8597</a>	Sealing Mats, Pierceable, 96-Square Well, Silicone	50/pk
<a href="#">AHO-8598</a>	Sealing Mats, Pre-Slit, 96-Square Well, Silicone	50/pk
<a href="#">AHO-8631</a>	Sealing Mats, Pierceable, 96-Round Well 7 mm, Silicone	50/pk
<a href="#">AHO-8632</a>	Sealing Mats, Pre-Slit, 96-Round Well 7 mm, Silicone	50/pk
<a href="#">AHO-8633</a>	Sealing Mats, Pierceable, 96-Round Well 8 mm, Silicone	50/pk
<a href="#">AHO-8634</a>	Sealing Mats, Pre-Slit, 96-Round Well 8 mm, Silicone	50/pk
<a href="#">AHO-7362</a>	Sealing Tape Pad	10/pk
<b>Vacuum Manifolds</b>		
<a href="#">VM12</a>	SPE 12-Position Vacuum Manifold Set, for tubes	ea
<a href="#">VM24</a>	SPE 24-Position Vacuum Manifold Set, for tubes	ea
<a href="#">AHO-8950</a>	96-Well Plate Manifold, Universal with Vacuum Gauge	ea

\*Manifolds include: Vacuum-tight glass chamber, vacuum gauge assembly, polypropylene lid with gasket, male and female luers and yellow end plugs, stopcock valves, collection rack assemblies, polypropylene needles, lid support legs. Waste container included with 12-positive manifold.

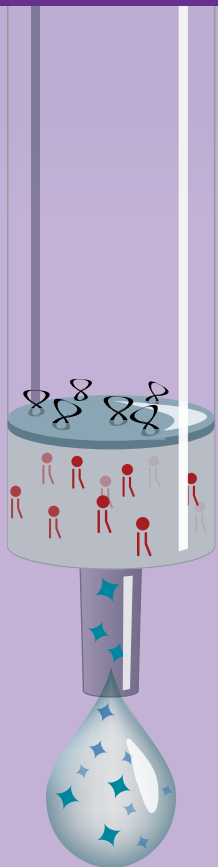
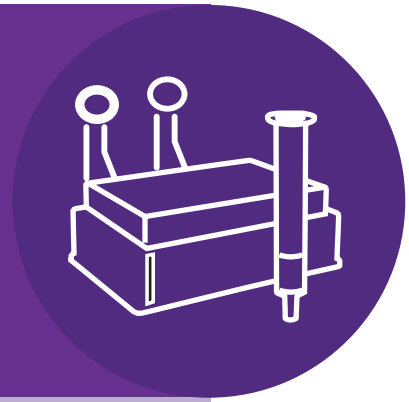
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# Phospholipid Removal



**Endogenous phospholipids are a primary source of ion suppression and resulting matrix effects in bioanalytical LC-MS work.**

**Presence of phospholipids can result in:**

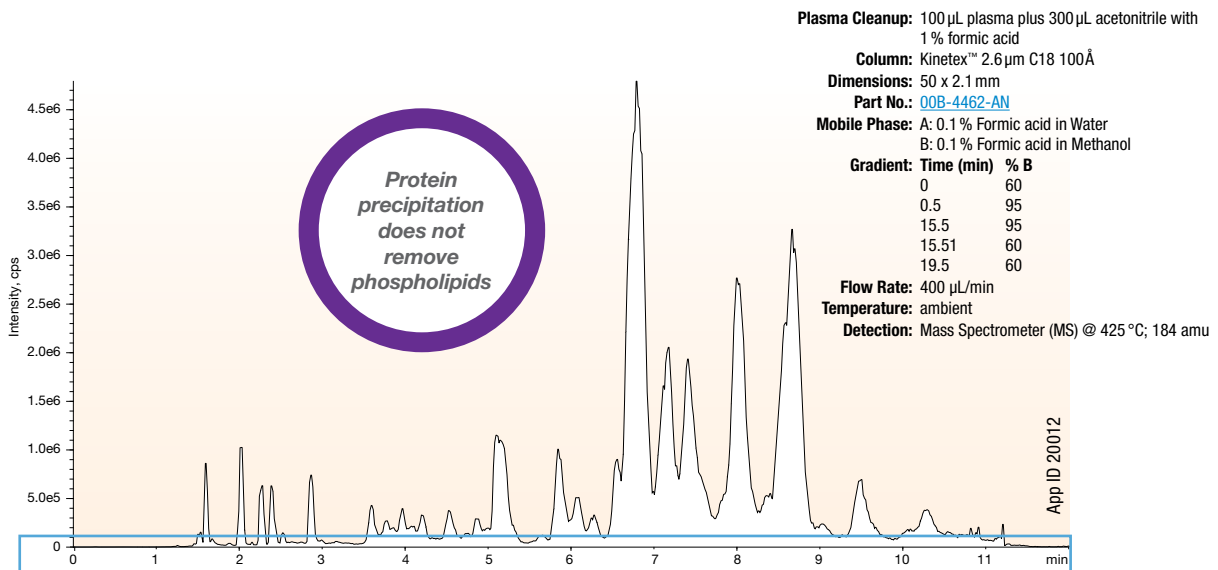
- Irreproducible results
- Quantitation issues
- Loss in method sensitivity
- Matrix to matrix bias

**[www.phenomenex.com/Phree](http://www.phenomenex.com/Phree)**

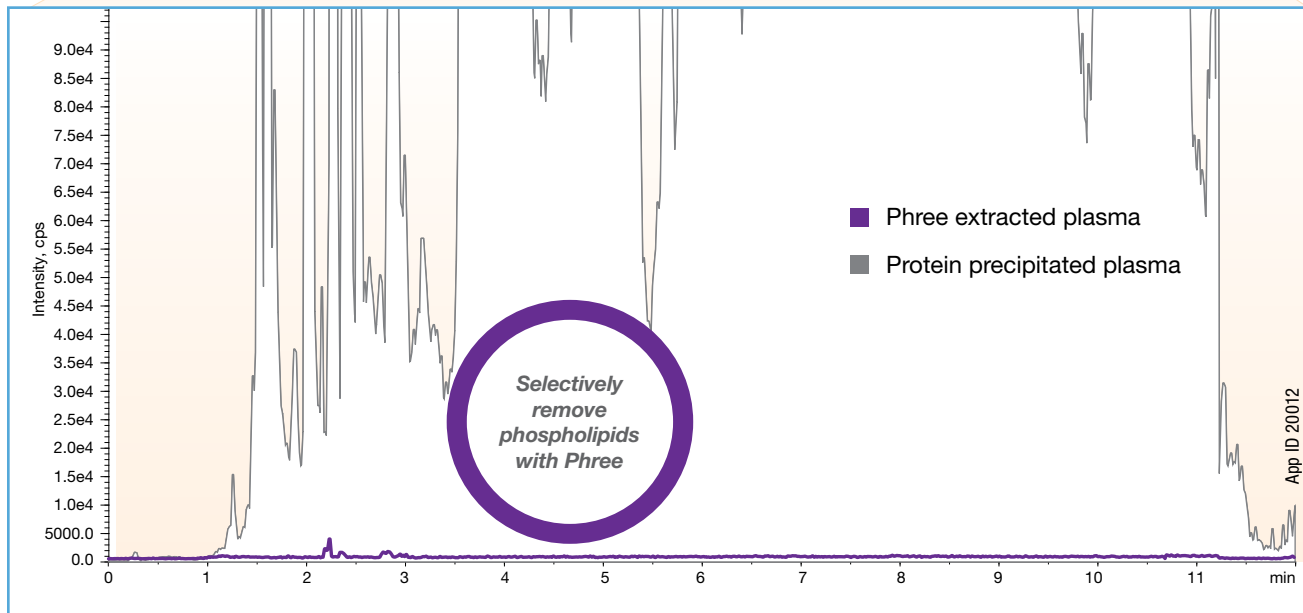
# Removing Phospholipids Reduces Matrix Effects

## Total Phospholipid Profile

Protein Precipitation vs. Phree Phospholipid Removal Products



~ 50x Zoom

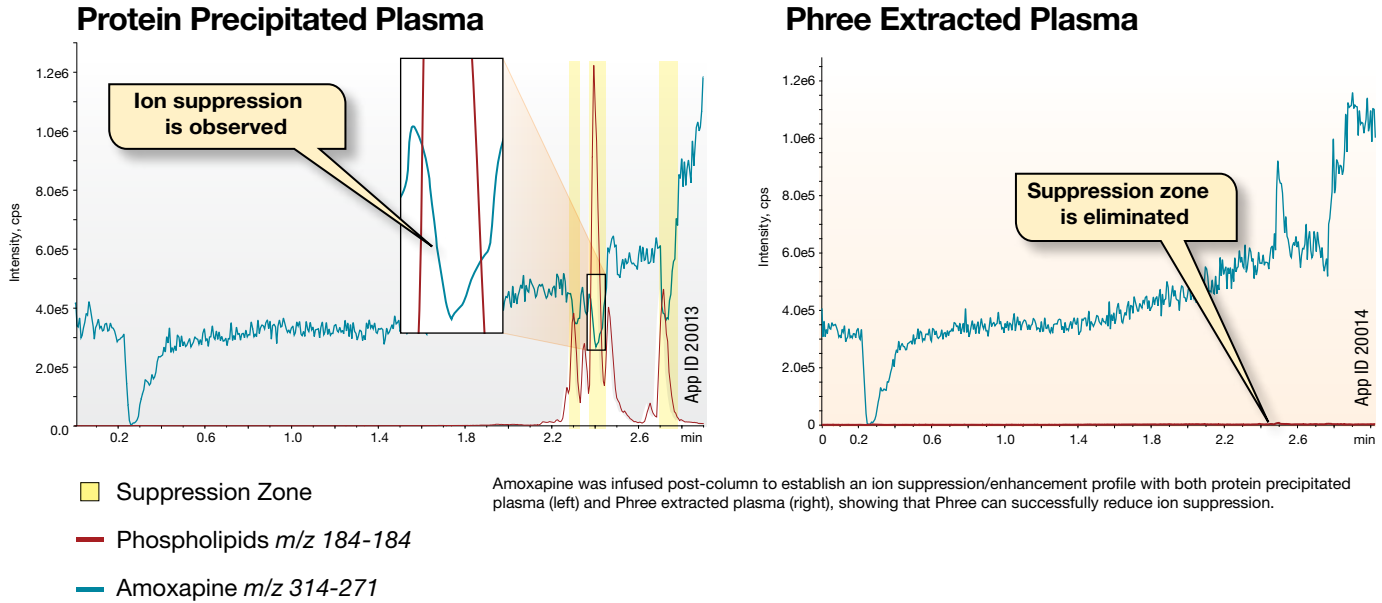


See How Phree Phospholipid Removal Plates Work

Visit: [www.phenomenex.com/Phree](http://www.phenomenex.com/Phree)

# Reduce Ion Suppression

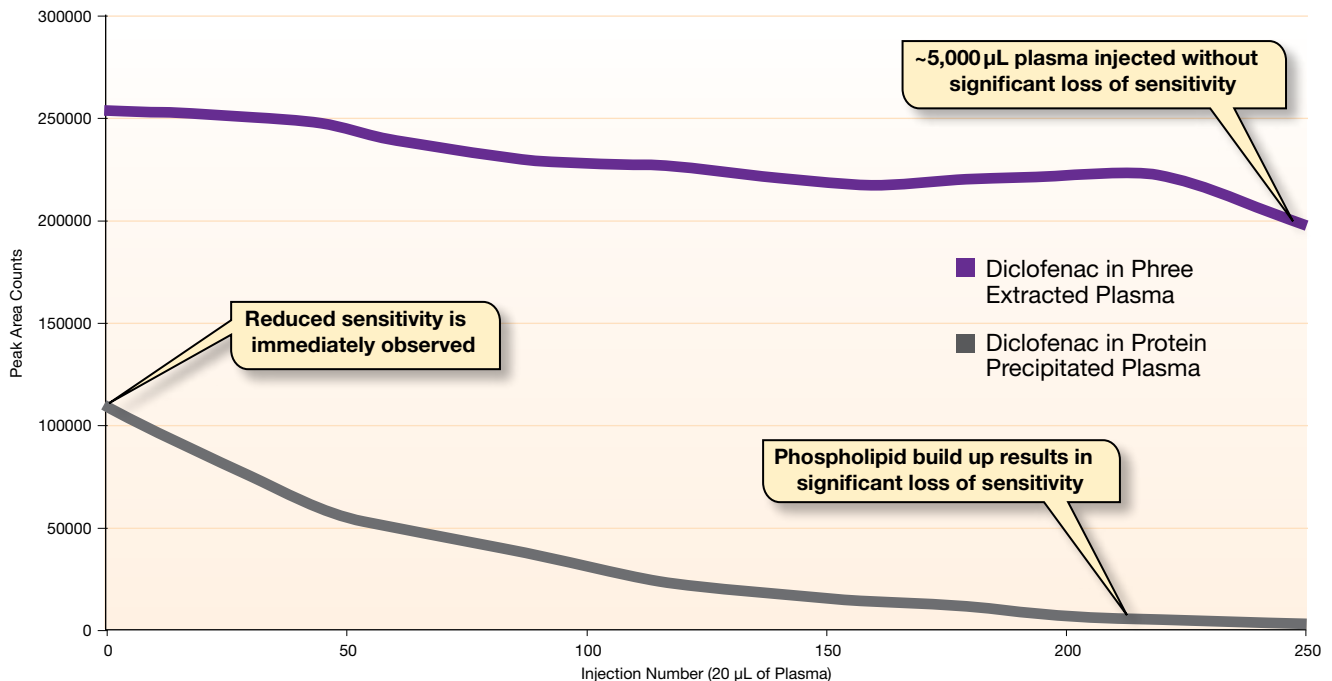
The presence of phospholipids in plasma samples produces zones of ion suppression that correlate exactly with the phospholipid elution profile when analyzed via mass spectrometer (MS).



# Maximize Sensitivity and Column Lifetime

Phospholipids reduce the sensitivity of the MS signal and shorten column lifetime when they build up over time.

## Column Sensitivity after 250 Injections

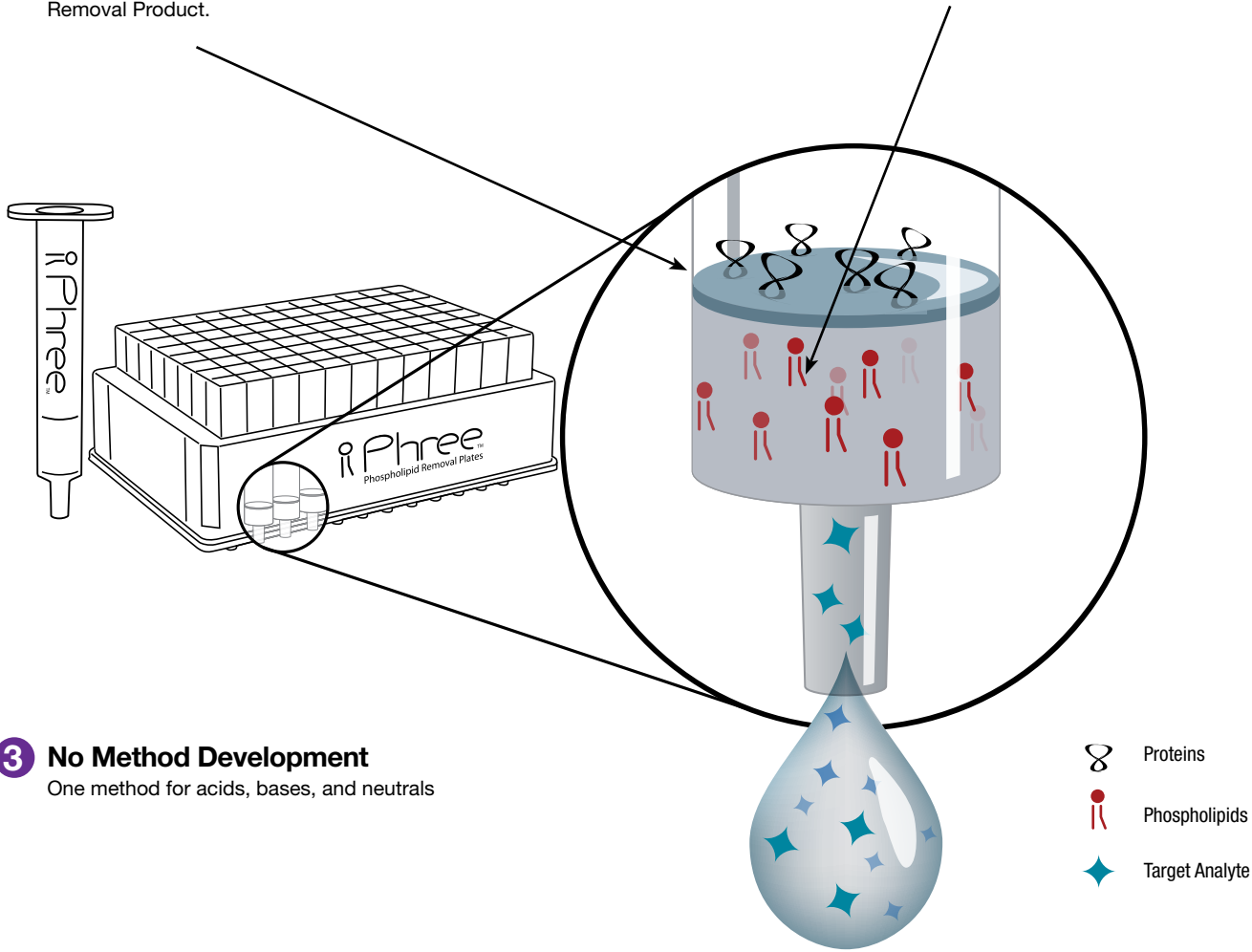


To assess the effect of phospholipid build up, repetitive 20 µL injections of diclofenac in protein precipitated plasma versus diclofenac in Phree extracted plasma were made.

# How Phree Works

**1 Remove Proteins**  
Solvent Shielding Technology™ prevents dripping of organic solvent, allowing for protein precipitation within the Phree Phospholipid Removal Product.

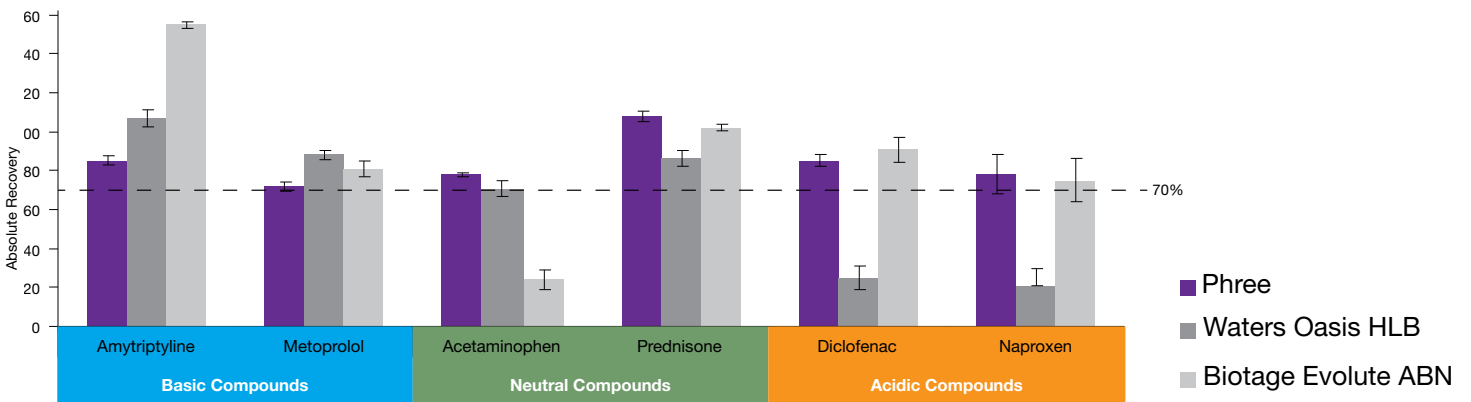
**2 Eliminate Phospholipids**  
The Phree sorbent selectively removes phospholipids from precipitated plasma samples.



**3 No Method Development**  
One method for acids, bases, and neutrals

## Recoveries

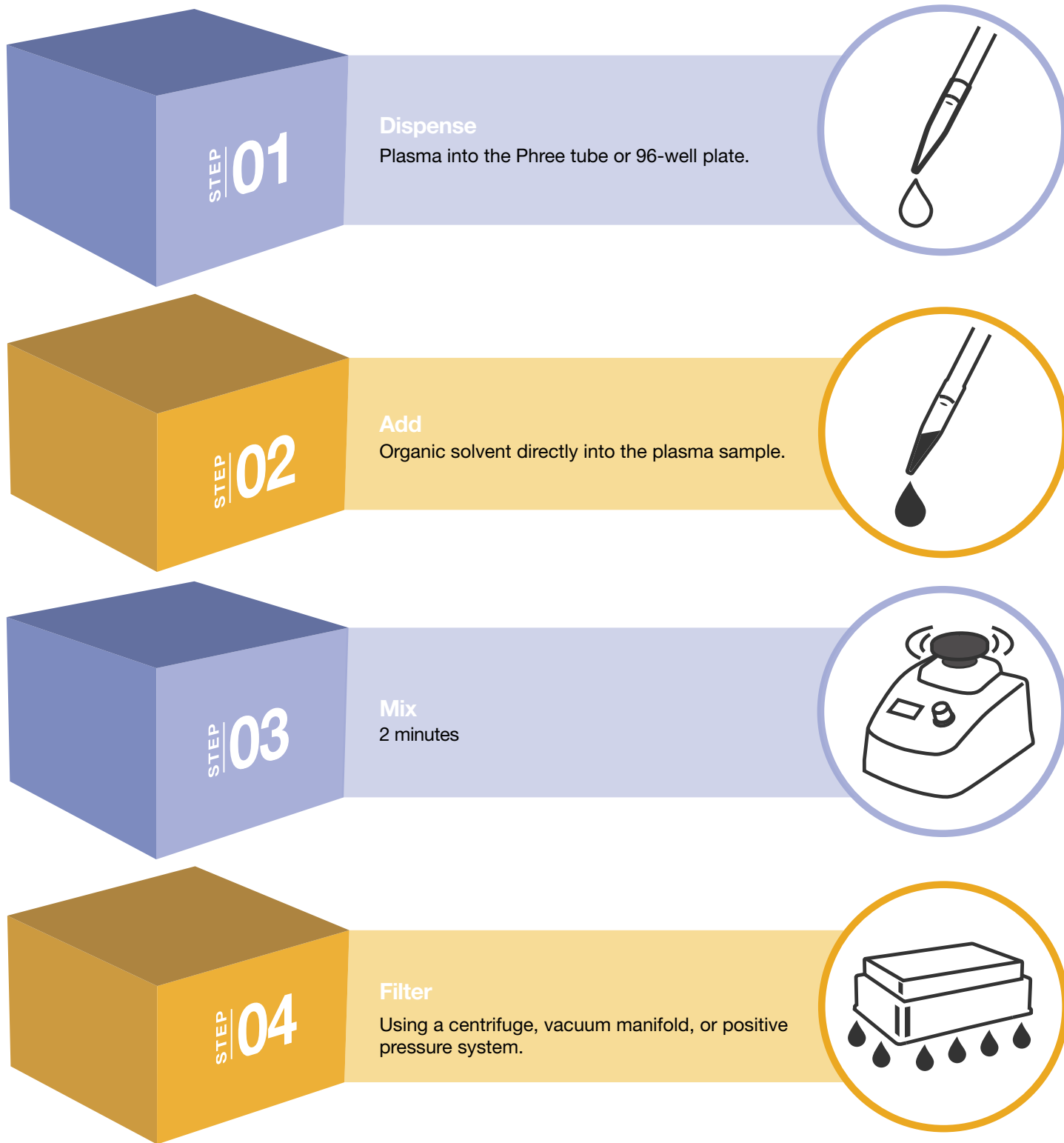
Absolute recoveries for acidic, basic, and neutral analytes using Phree Phospholipid Removal, Waters® Oasis® HLB SPE and Biotage® Evolute® ABN SPE.



Phenomenex is not affiliated with Waters Separation Corp. or Biotage AB Corp. Comparative separations may not be representative of all applications.

N=5 for all cleanup techniques  
Phenomenex is not affiliated with Waters Separations Corp or Biotage AB Corp. Comparative separations may not be representative of all applications.

# One Quick Method





# Ordering Information



## Phree Phospholipid Removal Products

Part No.	Description	Unit
<a href="#">8B-S133-TAK</a>	Phree Phospholipid Removal Tabbed 1 mL Tubes	100/box
<a href="#">8E-S133-TGB</a>	Phree Phospholipid Removal 96-Well Plates	2/box

### Accessories

Part No.	Description	Unit
<b>Collection Plates (deep well, polypropylene)</b>		
<a href="#">AHO-7192</a>	96-Well Collection Plate 350 µL/well	50/pk
<a href="#">AHO-7193</a>	96-Well Collection Plate 1 mL/well	50/pk
<a href="#">AHO-7194</a>	96-Well Collection Plate 2 mL/well	50/pk
<a href="#">AHO-8635</a>	96-Well Collection Plate, 2 mL Square/Round-Conical	50/pk
<a href="#">AHO-8636</a>	96-Well Collection Plate, 2 mL Round/Round, 8 mm	50/pk
<a href="#">AH1-7025</a>	96-Well Collection Plate, 1 mL/well Round, 7 mm	50/pk
<a href="#">AHO-9332</a>	96-Well Collection Plate, 1.2 mL/well Round Well Round Bottom	50/pk
<a href="#">AHO-9333</a>	96-Well Collection Plate, 0.5 mL/well V-Bottom, 7 mm Sterile	50/pk
<a href="#">AHO-9341</a>	96-Well Collection Plate, 0.5 mL/well Conical Bottom 7 mm	50/pk
<a href="#">AH1-7036</a>	96-Well Low-Bind Collection Plate, 2 mL/well Round Well Conical Bottom (glass lined)	120/pk
<b>Sealing Mats</b>		
<a href="#">AHO-8597</a>	Sealing Mats, Pierceable, 96-Square Well, Silicone	50/pk
<a href="#">AHO-8598</a>	Sealing Mats, Pre-Slit, 96-Square Well, Silicone	50/pk
<a href="#">AHO-8631</a>	Sealing Mats, Pierceable, 96-Round Well 7 mm, Silicone	50/pk
<a href="#">AHO-8632</a>	Sealing Mats, Pre-Slit, 96-Round Well 7 mm, Silicone	50/pk
<a href="#">AHO-8633</a>	Sealing Mats, Pierceable, 96-Round Well 8 mm, Silicone	50/pk
<a href="#">AHO-8634</a>	Sealing Mats, Pre-Slit, 96-Round Well 8 mm, Silicone	50/pk
<a href="#">AHO-7362</a>	Sealing Tape Pad	10/pk
<b>Vacuum Manifolds</b>		
<a href="#">VM12</a>	SPE 12-Position Vacuum Manifold Set, for tubes	ea
<a href="#">VM24</a>	SPE 24-Position Vacuum Manifold Set, for tubes	ea
<a href="#">AHO-8950</a>	96-Well Plate Manifold, Universal with Vacuum Gauge	ea

\*Manifolds include: Vacuum-tight glass chamber, vacuum gauge assembly, polypropylene lid with gasket, male and female luers and yellow end plugs, stopcock valves, collection rack assemblies, polypropylene needles, lid support legs. Waste container included with 12-positive manifold.

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By email: [SamplePrepSpecialist@Phenomenex.com](mailto:SamplePrepSpecialist@Phenomenex.com)

# QuEChERS

Quick-Easy-Cheap-Effective-Rugged-Safe



## The QuEChERS technique radically simplifies multi-residue analysis in food and other complex samples.

- Decreases complicated long extraction procedures
- Reduces use of hazardous solvents
- Ease to use with two step method

### Extraction

Pesticides and analytes of interest must first be extracted from the food sample. This process relies on the combination of organic solvent and various salts to partition the analytes from food samples into an organic layer (typically acetonitrile).

### Clean Up/Dispersive SPE (dSPE)

An aliquot of the organic layer from the extraction step is subjected to further clean up by dispersive SPE. This step selectively removes unwanted interferences such as lipids and pigments.

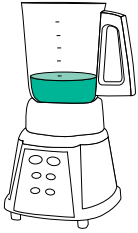


[www.phenomenex.com/roQ](http://www.phenomenex.com/roQ)

# The QuEChERS Technique

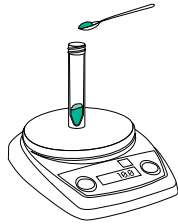


## STEP 01 Extraction



### Blend

fruits or vegetables to be analyzed.



### Weigh

blended sample.



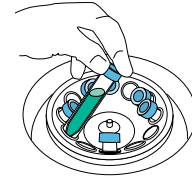
### Add

salts and acetonitrile.



### Shake

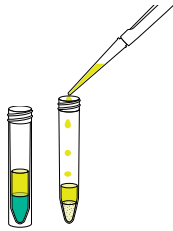
tube for 1 minute.



### Centrifuge

tube for 5 minutes.

## STEP 02 Clean up/Dispersive SPE (dSPE)



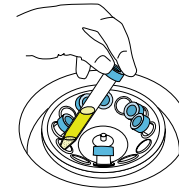
### Add

supernatant from extraction procedure into a roQ dSPE tube.



### Shake

dSPE tube for 30 seconds.



### Centrifuge

dSPE tube for 5 minutes\*.

\*After dSPE cleanup, supernatant is injected into LC or GC for analysis.

## Salts and Sorbents used in roQ Kits

### 1. Extraction

#### AOAC 2007.01 Method

Salts used:

- **Magnesium Sulfate (MgSO<sub>4</sub>)**  
Induces phase separation between water content in sample and acetonitrile layer
- **Sodium Acetate (NaAc)**  
Buffers the sample to stabilize pH

#### Original Non-Buffered Method

Salts used:

- **Magnesium Sulfate (MgSO<sub>4</sub>)**  
Induces phase separation between water content in sample and acetonitrile layer
- **Sodium Chloride (NaCl)**  
Induces phase separation between water content in sample and acetonitrile layer

#### EN 15662 Method

Salts used:

- **Magnesium Sulfate (MgSO<sub>4</sub>)**  
Induces phase separation between water content in sample and acetonitrile layer
- **Sodium Chloride (NaCl)**  
Induces phase separation between water content in sample and acetonitrile layer
- **Sodium Citrate Tribasic Dihydrate (SCTD)**  
Buffers the sample to stabilize pH
- **Sodium Citrate Dibasic Sesquihydrate (SCDS)**  
Buffers the sample to stabilize pH

### 2. Clean Up/dSPE

Salts and sorbents used:

- **Magnesium Sulfate (MgSO<sub>4</sub>)**  
Removes excess water from sample
- **Primary/Secondary Amine (PSA)**  
Removes organic acids, fatty acids, sugars, and anthocyanine pigments from sample
- **Endcapped C18 Sorbent (C18E)**  
Removes fats, sterols, and other non-polar interferences from sample
- **Graphitized Carbon Black (GCB)**  
Removes pigments from sample  
NOT FOR USE WITH PLANAR PESTICIDES

# roQ QuEChERS Kits Succeed Where Others Fail



Improved with you in mind, the unique design of the roQ QuEChERS kits eliminates common problems seen with current QuEChERS kits on the market.

## Ease of Use

Built-in Removable Rack



Stand Alone Extraction Tubes



Easy Pour Salt Packets

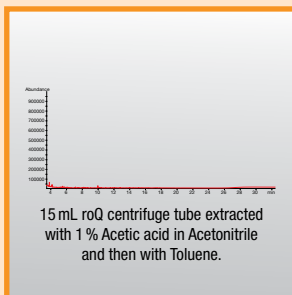


## Quality

Leak-Free Tubes



Low Leachate Tubes



### Quality Management System Certified

- Validates processes to be fully established, functional, and meet international standards
- MSDS and Certificate of Analysis (CoA) available for all kits
- roQ QuEChERS kits are guaranteed for quality

**COMPANY WITH  
QUALITY SYSTEM  
CERTIFIED BY DNV GL  
= ISO 9001:2015 =**

## Technical Support



### Sample Preparation Support at Your Fingertips

- Dedicated sample preparation team available to assist your method development needs
- Expertise in sample preparation and solid phase extraction
- Access to up-to-date sample preparation applications

### Free Method Development Services

- Let our specialists help you with new method development, method optimization, and validation, including FDA compliant and GMP compliant validation.

### We're Here to Help!

Contact your Sample Preparation Specialist  
Email:

[SamplePrepSpecialist@Phenomenex.com](mailto:SamplePrepSpecialist@Phenomenex.com)


# Choose Your QuEChERS Kit



**STEP 01** Extraction

<p style="text-align: center; font-weight: bold; font-size: 1.2em;">AOAC</p> <p style="text-align: center;"><b>AOAC 2007.01 Method</b> 6.0g MgSO<sub>4</sub>, 1.5g NaOAc <a href="#">KS0-8911</a></p>	<p style="text-align: center; font-weight: bold; font-size: 1.2em;">ORIGINAL</p> <p style="text-align: center;"><b>Non-Buffered Method</b> 4.0g MgSO<sub>4</sub>, 1.0g NaCl 6.0g MgSO<sub>4</sub>, 1.5g NaCl <a href="#">KS0-8910</a> <a href="#">KS0-8912</a></p>	<p style="text-align: center; font-weight: bold; font-size: 1.2em;">EN</p> <p style="text-align: center;"><b>EN 15662 Method</b> 4.0g MgSO<sub>4</sub>, 1.0g NaCl, 1.0g SCTD, 0.5g SCDS <a href="#">KS0-8909</a></p>
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**STEP 02** Clean up/Dispersive SPE (dSPE)

	AOAC 2007.01		EN 15662	
	1 mL	8 mL	1 mL	6 mL
<p><b>General</b></p> 	150 mg MgSO <sub>4</sub> 50 mg PSA <a href="#">KS0-9511</a>	1200 mg MgSO <sub>4</sub> 400 mg PSA <a href="#">KS0-9515</a>	150 mg MgSO <sub>4</sub> 25 mg PSA <a href="#">KS0-9503</a>	900 mg MgSO <sub>4</sub> 150 mg PSA <a href="#">KS0-9507</a>
<p><b>Fats and Waxes</b></p> 	150 mg MgSO <sub>4</sub> 50 mg PSA 50 mg C18E <a href="#">KS0-9512</a>	1200 mg MgSO <sub>4</sub> 400 mg PSA 400 mg C18E <a href="#">KS0-9516</a>	150 mg MgSO <sub>4</sub> 25 mg PSA 25 mg C18E <a href="#">KS0-9504</a>	900 mg MgSO <sub>4</sub> 150 mg PSA 150 mg C18E <a href="#">KS0-9508</a>
<p><b>Pigmented</b></p> 	150 mg MgSO <sub>4</sub> 50 mg PSA 50 mg GCB <a href="#">KS0-9513</a>	1200 mg MgSO <sub>4</sub> 400 mg PSA 400 mg GCB <a href="#">KS0-9517</a>	150 mg MgSO <sub>4</sub> 25 mg PSA 2.5 mg GCB <a href="#">KS0-9505</a>	900 mg MgSO <sub>4</sub> 150 mg PSA 15 mg GCB <a href="#">KS0-9509</a>
<p><b>Highly Pigmented</b></p> 	—	—	150 mg MgSO <sub>4</sub> 25 mg PSA 7.5 mg GCB <a href="#">KS0-9506</a>	900 mg MgSO <sub>4</sub> 150 mg PSA 45 mg GCB <a href="#">KS0-9510</a>
<p><b>Pigments and Fats</b></p> 	150 mg MgSO <sub>4</sub> 50 mg PSA 50 mg GCB 50 mg C18E <a href="#">KS0-9514</a>	1200 mg MgSO <sub>4</sub> 400 mg PSA 400 mg GCB 400 mg C18E <a href="#">KS0-9518</a>	—	—

# Recommended roQ Extraction and dSPE Kits



## Mycotoxins Screening—Grains

### Extraction

EN 15662 Method  
4.0 g MgSO<sub>4</sub>, 1.0 g NaCl,  
1.0 g SCTD, 0.5 g SCDS

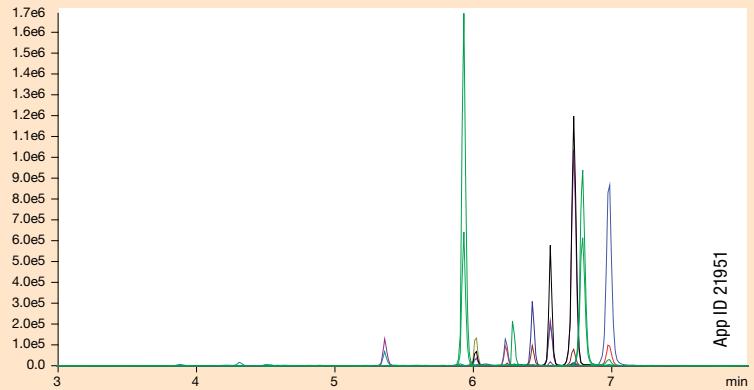
[KS0-8909](#)

### Clean up/dSPE

EN 15662 Method  
15 mL dSPE Kits  
900 mg MgSO<sub>4</sub>, 150 mg PSA

[KS0-9507](#)

Analytical Column: Kinetex™ Core-Shell 2.6 μm Biphenyl



## Pesticide Screening—Kale

### Extraction

EN 15662 Method  
4.0 g MgSO<sub>4</sub>, 1.0 g NaCl,  
1.0 g SCTD, 0.5 g SCDS

[KS0-8909](#)

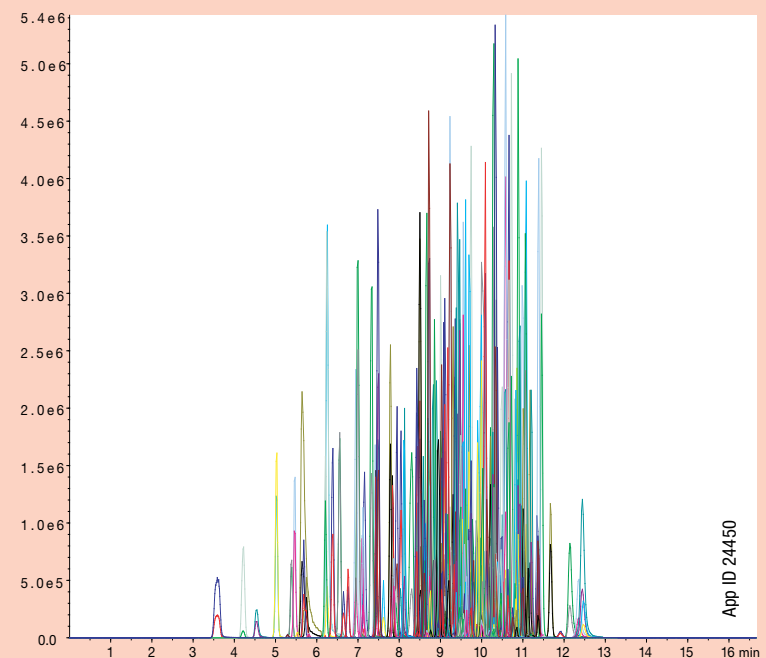
### Clean up/dSPE

EN 15662 Method  
15 mL dSPE Kits  
900 mg MgSO<sub>4</sub>, 150 mg PSA, 15 mg GCB

[KS0-9509](#)

Read the full technical note online,  
search [TN-0115](#) on  
[www.phenomenex.com](http://www.phenomenex.com)

Analytical Column: Kinetex Core-Shell 5 μm Biphenyl



## Antibiotics—Meats

### Extraction

AOAC 2007.01 Method  
6.0 g MgSO<sub>4</sub>, 1.5 g NaOAc

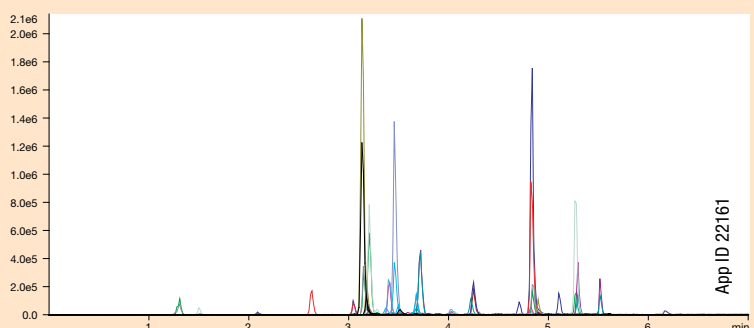
[KS0-8911](#)

### Clean up/dSPE

15 mL dSPE Kits  
900 mg MgSO<sub>4</sub>, 150 mg PSA, 15 mg GCB  
150 mg C18E

[KS0-9509](#)

Analytical Column: Kinetex Core-Shell 2.6 μm Biphenyl



# Ordering Information



## roQ™ Extraction Kits

Extraction kits contain fifty easy-pour salt packets and fifty 50 mL stand-alone centrifuge tubes

Description	Unit	Part No.
<b>AOAC 2007.01 Method Extraction Kits</b>		
6.0 g MgSO <sub>4</sub> , 1.5 g NaOAc	50/pk	<a href="#">KSO-8911*</a>
<b>EN 15662 Method Extraction Kits</b>		
4.0 g MgSO <sub>4</sub> , 1.0 g NaCl, 1.0 g SCTD, 0.5 g SCDS	50/pk	<a href="#">KSO-8909*</a>
<b>Original Non-buffered Method Extraction Kits</b>		
4.0 g MgSO <sub>4</sub> , 1.0 g NaCl	50/pk	<a href="#">KSO-8910</a>
6.0 g MgSO <sub>4</sub> , 1.5 g NaCl	50/pk	<a href="#">KSO-8912</a>

\*AOAC and EN Extraction Kits also available in traditional non-collared 50 mL centrifuge tubes, Part No.: [KSO-8911-NC](#) and [KSO-8909-NC](#)

## roQ dSPE Kits

dSPE kits contain pre-weighed sorbents/salts inside 2 mL or 15 mL centrifuge tubes

Description	Unit	Part No.
<b>2 mL dSPE Kits</b>		
150 mg MgSO <sub>4</sub> , 25 mg PSA, 25 mg C18E	100/pk	<a href="#">KSO-9504</a>
150 mg MgSO <sub>4</sub> , 25 mg PSA, 2.5 mg GCB	100/pk	<a href="#">KSO-9505</a>
150 mg, MgSO <sub>4</sub> , 25 mg PSA, 7.5 mg GCB	100/pk	<a href="#">KSO-9506</a>
150 mg MgSO <sub>4</sub> , 25 mg PSA	100/pk	<a href="#">KSO-9503</a>
150 mg MgSO <sub>4</sub> , 50 mg PSA, 50 mg C18E, 50 mg GCB	100/pk	<a href="#">KSO-9514</a>
150 mg MgSO <sub>4</sub> , 50 mg PSA, 50 mg C18E	100/pk	<a href="#">KSO-9512</a>
150 mg MgSO <sub>4</sub> , 50 mg PSA, 50 mg GCB	100/pk	<a href="#">KSO-9513</a>
150 mg MgSO <sub>4</sub> , 50 mg PSA	100/pk	<a href="#">KSO-9511</a>
<b>15 mL dSPE Kits</b>		
900 mg MgSO <sub>4</sub> , 150 mg PSA, 150 mg C18E	50/pk	<a href="#">KSO-9508</a>
900 mg MgSO <sub>4</sub> , 150 mg PSA, 15 mg GCB	50/pk	<a href="#">KSO-9509</a>
900 mg MgSO <sub>4</sub> , 150 mg PSA, 45 mg GCB	50/pk	<a href="#">KSO-9510</a>
900 mg MgSO <sub>4</sub> , 150 mg PSA	50/pk	<a href="#">KSO-9507</a>
1200 mg MgSO <sub>4</sub> , 400 mg PSA, 400 mg C18E, 400 mg GCB	50/pk	<a href="#">KSO-9518</a>
1200 mg MgSO <sub>4</sub> , 400 mg PSA, 400 mg C18E	50/pk	<a href="#">KSO-9516</a>
1200 mg MgSO <sub>4</sub> , 400 mg PSA, 400 mg GCB	50/pk	<a href="#">KSO-9517</a>
1200 mg MgSO <sub>4</sub> , 400 mg PSA	50/pk	<a href="#">KSO-9515</a>

## roQ Extraction Salt Packets

Salt packets only. Centrifuge tubes not included.

Description	Unit	Part No.
<b>AOAC 2007.01 Method Extraction Packets</b>		
6.0 g MgSO <sub>4</sub> , 1.5 g NaOAc	50/pk	<a href="#">AHO-9043</a>
<b>EN 15662 Method Extraction Packets</b>		
4.0 g MgSO <sub>4</sub> , 1.0 g NaCl, 1.0 g SCTD, 0.5 g SCDS	50/pk	<a href="#">AHO-9041</a>
<b>Original Non-Buffered Method Extraction Packets</b>		
4.0 g MgSO <sub>4</sub> , 1.0 g NaCl	50/pk	<a href="#">AHO-9042</a>
6.0 g MgSO <sub>4</sub> , 1.5 g NaCl	50/pk	<a href="#">AHO-9044</a>

## Bulk roQ QuEChERS Sorbents

Phase	10 g	100 g
C18-E	—	<a href="#">04G-4348</a>
GCB (Graphitized Carbon Black)	<a href="#">04D-4615</a>	<a href="#">04G-4615</a>
PSA	—	<a href="#">04G-4610</a>



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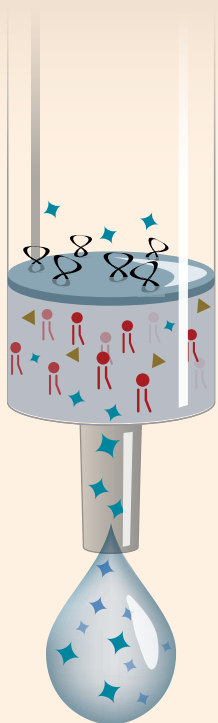
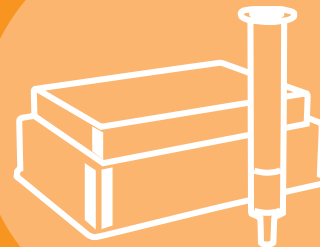
[www.phenomenex.com/behappy](http://www.phenomenex.com/behappy)



[www.phenomenex.com/roQ](http://www.phenomenex.com/roQ)

- Applications
- Technical Notes
- Tutorials and Webinars
- Tools
- And more

# Supported Liquid Extraction



**Supported Liquid Extraction (SLE) is a faster, easier, and more reliable way to perform liquid-liquid extractions**

- Eliminate interferences from your analysis
- Remove unwanted interferences such as proteins and phospholipids from biological samples without performing extensive method development
- Provides consistent, reliable results from lot-to-lot
- In two unique sorbent types:  
a natural diatomaceous earth and a synthetic dependable sorbent

[www.phenomenex.com/Novum](http://www.phenomenex.com/Novum)

**Now with Novum PRO SLE!**

**Get down to low extraction levels (LLOD) with reduced background noise due to our advanced manufacturing processes.**



# A Simplified Way to Do Liquid-Liquid Extraction

## An Easy, Automatable Procedure

**novum**<sup>™</sup>  
simplified liquid extraction  
PATENT PENDING

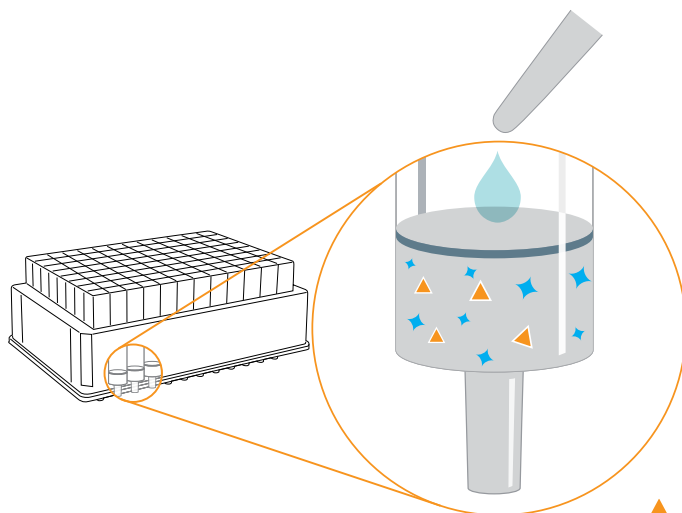
**strata**<sup>™</sup> DE  
Supported Liquid Extraction

Supported Liquid Extraction



### STEP 01

#### Load Your Sample in Aqueous Solvent

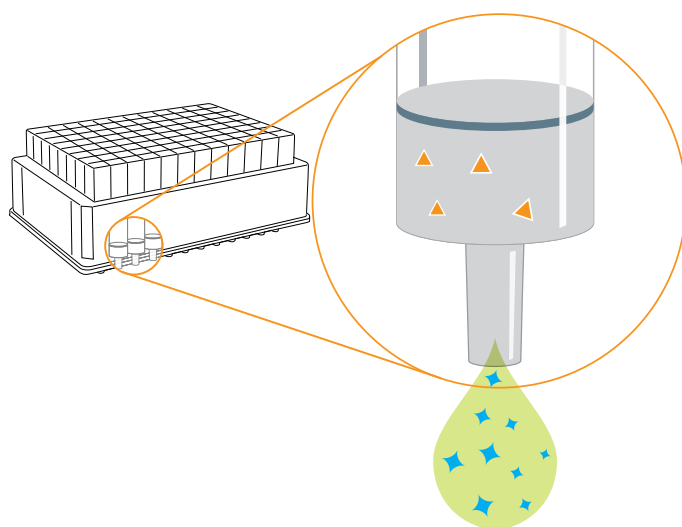


No emulsions

- ▲ Interferences  
(i.e. phospholipids, proteins, salts, etc.)
- ◆ Target Analytes

### STEP 02

#### Collect your Target Analytes in Water Immisible Solvent

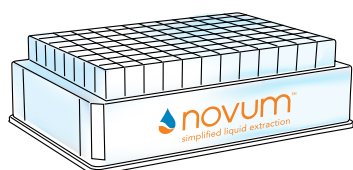


No need to manually separate liquid phases

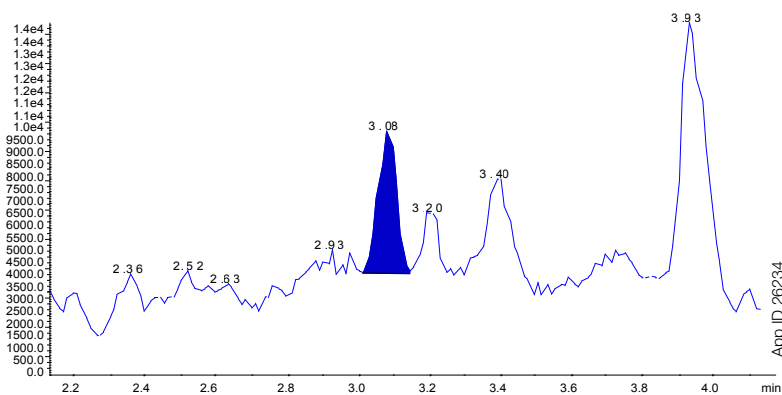
# Get Down to the Lowest Extraction Levels with Novum PRO SLE

Offers the same reliable synthetic sorbent as Novum with additional clean manufacturing steps to reach low levels of detection for sensitive MS applications, with the same quality reproducibility for high-throughput samples.

- Specific manufacture capabilities to improve matrix factor response and reduce noisy baselines for low level testing of biological samples
- API 6500+ fit for purpose testing to ensure clean baseline with each batch
- Available in both MINI and MAX 96-well plate formats for high-throughput applications



5 pg/mL (LLOQ) Estriol (E3)



## Easy Method Development

- Screen elution solvents in less time
- Easily determine the best solvent to use for clean backgrounds

## Low Level Detection

- Applications that require low levels of detection and sensitivity can now be met by Novum PRO SLE

## Equivalent reliability to traditional synthetic Novum SLE

View more applications and information  
about Novum PRO SLE at  
[www.phenomenex.com/Novum](http://www.phenomenex.com/Novum)

# Select Your SLE Sorbent!

View the differences in our sorbent options



<b>Synthetic</b>	<b>Sorbent</b>	<b>Diatomaceous Earth</b>
Lot-to-lot consistency and reproducibility	<b>Advantages</b>	Cost effective and large volume capabilities
Ethyl Acetate, Methyl Tert-Butyl Ether (MTBE)	<b>Extraction Solvents</b>	Dichloromethane (DCM) Hexane, MTBE, Ethyl Acetate
MINI 96-Well Plates, MAX 96-Well Plates	<b>Plate Formats</b>	200µL 96-Well Plates, 400µL 96-Well Plates
1cc, 3cc, 6cc, 12cc	<b>Tube Formats</b>	1cc, 3cc, 6cc, 12cc, 60cc

Supported Liquid Extraction



## Still need help?

SLE sorbent selections are dependent on extraction solvents, sample volumes, and analytes being extracted. To learn which SLE product is right for your extraction method:



Call us

or



Live Chat

[www.phenomenex.com/LiveChat](http://www.phenomenex.com/LiveChat)

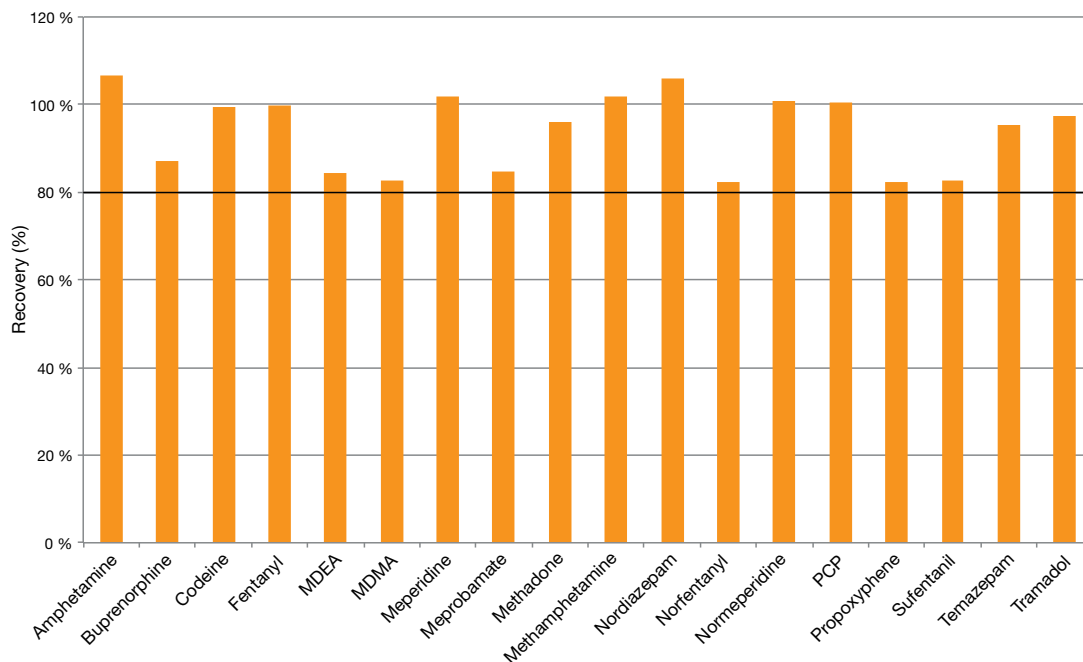
# Synthetic SLE Sorbent

## Consistent, High Recoveries of Target Analytes

### Avoid Inferior Results Due to Emulsions

Emulsions are associated with traditional liquid-liquid extraction and are the root cause of analyte loss and contamination. Novum SLE eliminates the formation of emulsions, maximizing your analyte recovery while reducing contamination.

### Research Drug Panel from Urine



> 80%  
recoveries for  
most analytes

Analyte	% RSD
Amphetamine	3
Buprenorphine	5
Codeine	10
Fentanyl	6
MDEA	4
MDMA	4
Meperidine	9
Meprobamate	7
Methadone	2
Methamphetamine	12
Nordiazepam	1
Norfentanyl	3
Normeperidine	4
PCP	2
Propoxyphene	9
Sufentanil	11
Temazepam	2
Tramadol	9

### Extraction Method

- 1 Load diluted urine (diluted 1:1 with 0.5 M Ammonium hydroxide) onto Novum MAX SLE 96-well plate, apply vacuum for 2-15 seconds
- 2 Allow sample to soak into Novum SLE sorbent for 5 minutes
- 3 Elute with ethyl acetate

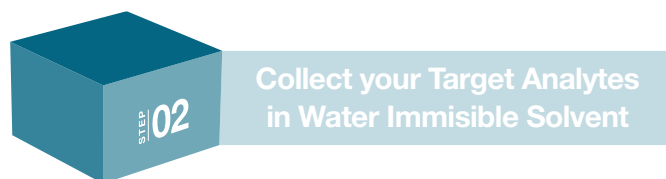
### Trust Your Results

Novum SLE simplifies the liquid-liquid extraction process and provides consistent recoveries from sample to sample. Never worry about analyte loss due to incomplete manual separation of liquid phases or the formation of emulsions.

# Diatomaceous Earth SLE Sorbent



Packed with diatomaceous earth, Strata DE is a cost-effective alternative to traditional SLE products such as Biotage® ISOLUTE® SLE+, Thermo Fisher® Hypersep™ SLE, and Agilent® Chem Elut™ SLE that won't require you to sacrifice your results. Recommended as a direct alternative to traditional diatomaceous earth SLE sorbents.



**Table 1.**  
Recovery Values and % CVs: Strata DE vs. Biotage ISOLUTE SLE+

Analyte	Strata DE		Biotage ISOLUTE SLE+	
	% Recovery	% CV (n=8)	% Recovery	% CV (n=8)
6-MAM	98	9	88	16
Alprazolam	104	10	98	11
Benzoylecgonine	88	6	98	11
Buprenorphine	93	7	102	15
Codeine	99	12	93	9
Diazepam	107	7	104	6
Fentanyl	85	5	94	8
Hydrocodone	104	11	93	11
Hydromorphone	95	9	93	11
Lorazepam	94	8	98	8
Methamphetamine	92	16	102	8
Morphine	98	12	94	12
Norbuprenorphine	101	11	92	11
Nordiazepam	100	9	92	8
Norfentanyl	113	7	110	11
Oxycodone	97	5	93	11
PCP	90	7	98	6

## SLE Protocol

- 96-Well Plate:** Strata DE SLE 400 µL 96-Well Plate Biotage ISOLUTE SLE+ 400 µL 96-Well Plate
- Part No.:** [8E-S325-5GB](#) (Strata DE)
- Load:** 300 µL pre-treated sample onto plate (apply vacuum or positive pressure to pull/push sample into sorbent if necessary)
- Wait:** 6 minutes
- Elute:** 3x 600 µL Dichloromethane/IPA (95:5)
- Apply:** Vacuum or apply positive pressure at 5-10» Hg for 10 seconds
- Dry:** Sample under slow stream of Nitrogen at 30 °C
- Reconstitute:** 100 µL 0.1% Formic Acid/Methanol (4:1) with internal standard



Achieve the Same Recoveries as Biotage ISOLUTE SLE+, at a Lower Price!

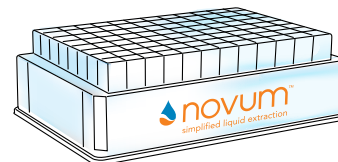
# Ordering Information



## Novum™ Supported Liquid Extraction 96-Well Plates.

Novum SLE Well Plates		
Part No.	Description	Unit
<a href="#">8E-S138-FGA</a>	Novum SLE MINI 96-Well Plate	1/pk
<a href="#">8E-S138-5GA</a>	Novum SLE MAX 96-Well Plate	1/pk

Part No.	Description	Unit
<a href="#">8E-S138-FGA</a>	Novum SLE MINI 96-Well Plate	1/pk
<a href="#">8E-S138-5GA</a>	Novum SLE MAX 96-Well Plate	1/pk
<a href="#">8E-S539-FGA</a>	Novum PRO SLE MINI, 96-Well Plate	1/pk
<a href="#">8E-S539-5GA</a>	Novum PRO SLE MAX, 96-Well Plate	1/pk



## Strata DE SLE Well Plates.

Novum Simplified Liquid Extraction SLE Well Plates		
Part No.	Description	Unit
<a href="#">8E-S325-FGB</a>	Strata DE SLE 200 µL 96-Well Plate	2/pk
<a href="#">8E-S325-5GB</a>	Strata DE SLE 400 µL 96-Well Plate	2/pk

## Novum SLE Tubes

Novum Simplified Liquid Extraction (SLE) Tubes		
Part No.	Description	Unit
<a href="#">8B-S138-FAK</a>	Novum SLE 1 cc Tubes	100/pk
<a href="#">8B-S138-5BJ</a>	Novum SLE 3 cc Tubes	50/pk
<a href="#">8B-S138-JCH</a>	Novum SLE 6 cc Tubes	30/pk
<a href="#">8B-S138-KDG</a>	Novum SLE 12 cc Tubes	20/pk

## Strata DE SLE Tubes

Strata-DE Diatomaceous Earth SLE Tubes		
Part No.	Description	Unit
<a href="#">8B-S325-KDG</a>	Strata DE SLE 12 cc Tubes	20/pk
<a href="#">8B-S325-VFF</a>	Strata DE SLE 60 cc Tubes	16/pk
<a href="#">8B-S325-FAK</a>	Strata DE SLE 1 cc Tubes	100/pk
<a href="#">8B-S325-5BJ</a>	Strata DE SLE 3 cc Tubes	50/pk
<a href="#">8B-S325-JCH</a>	Strata DE SLE 60 cc Tubes	30/pk

## Tube Accessories

Vacuum Manifolds		
Part No.	Description	Unit
<a href="#">AHO-6023</a>	12-Position Vacuum Manifold Set	ea
<a href="#">AHO-6024</a>	24-Position Vacuum Manifold Set	ea

## Well Plate Accessories

Part No.	Description	Unit
<b>Collection Plates (deep well, polypropylene)</b>		
<a href="#">AHO-7192</a>	96-Well Collection Plate, 350 µL/well	50/pk
<a href="#">AHO-7193</a>	96-Well Collection Plate, 1mL/well	50/pk
<a href="#">AHO-7194</a>	96-Well Collection Plate, 2mL/well	50/pk
<a href="#">AHO-8635</a>	96-Well Collection Plate, 2mL Square/Round-Conical	50/pk
<a href="#">AHO-8636</a>	96-Well Collection Plate, 2mL Round/Round, 8mm	50/pk
<a href="#">AHI-7025</a>	96-Well Collection Plate, 1mL/well Round, 7mm	50/pk
<a href="#">AHO-9332</a>	96-Well Collection Plate, 1.2 mL/well Round Well Round Bottom	50/pk
<a href="#">AHO-9333</a>	96-Well Collection Plate, 0.5 mL/well V-Bottom, 7 mm Sterile	50/pk
<a href="#">AHO-9341</a>	96-Well Collection Plate, 0.5 mL/well Conical Bottom 7 mm	50/pk
<a href="#">AHI-7036</a>	96-Well Low-Bind Collection Plate, 2 mL/well Round Well Conical Bottom (glass lined)	120/pk
<b>Sealing Mats</b>		
<a href="#">AHO-8597</a>	Sealing Mats, Pierceable, 96-Square Well, Silicone	50/pk
<a href="#">AHO-8598</a>	Sealing Mats, Pre-Slit, 96-Square Well, Silicone	50/pk
<a href="#">AHO-8631</a>	Sealing Mats, Pierceable, 96-Round Well 7mm, Silicone	50/pk
<a href="#">AHO-8632</a>	Sealing Mats, Pre-Slit, 96-Round Well 7mm, Silicone	50/pk
<a href="#">AHO-8633</a>	Sealing Mats, Pierceable, 96-Round Well 8mm, Silicone	50/pk
<a href="#">AHO-8634</a>	Sealing Mats, Pre-Slit, 96-Round Well 8mm, Silicone	50/pk
<a href="#">AHO-7362</a>	Sealing Tape Pad	10/pk
<b>Vacuum Manifolds</b>		
<a href="#">AHO-8950</a>	96-Well Plate Manifold, Universal with Vacuum Gage	ea

Diverse SLE sorbent options that work with your unique extractions!

**BE-HAPPY™**  
GUARANTEE

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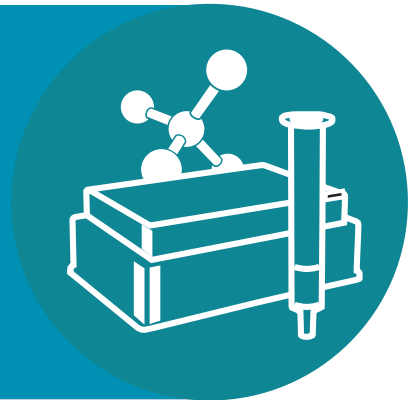


Watch "An Introduction to Supported Liquid Extraction"

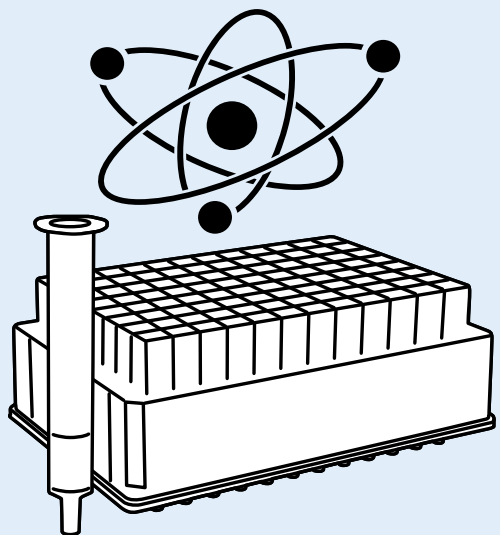
Visit:

[www.phenomenex.com/SLE](http://www.phenomenex.com/SLE)

# Solid Phase Extraction (SPE)



**Solid Phase Extraction (SPE) is a very targeted form of sample preparation that allows you to isolate your analyte of interest while removing any interfering compounds that may be in your sample**



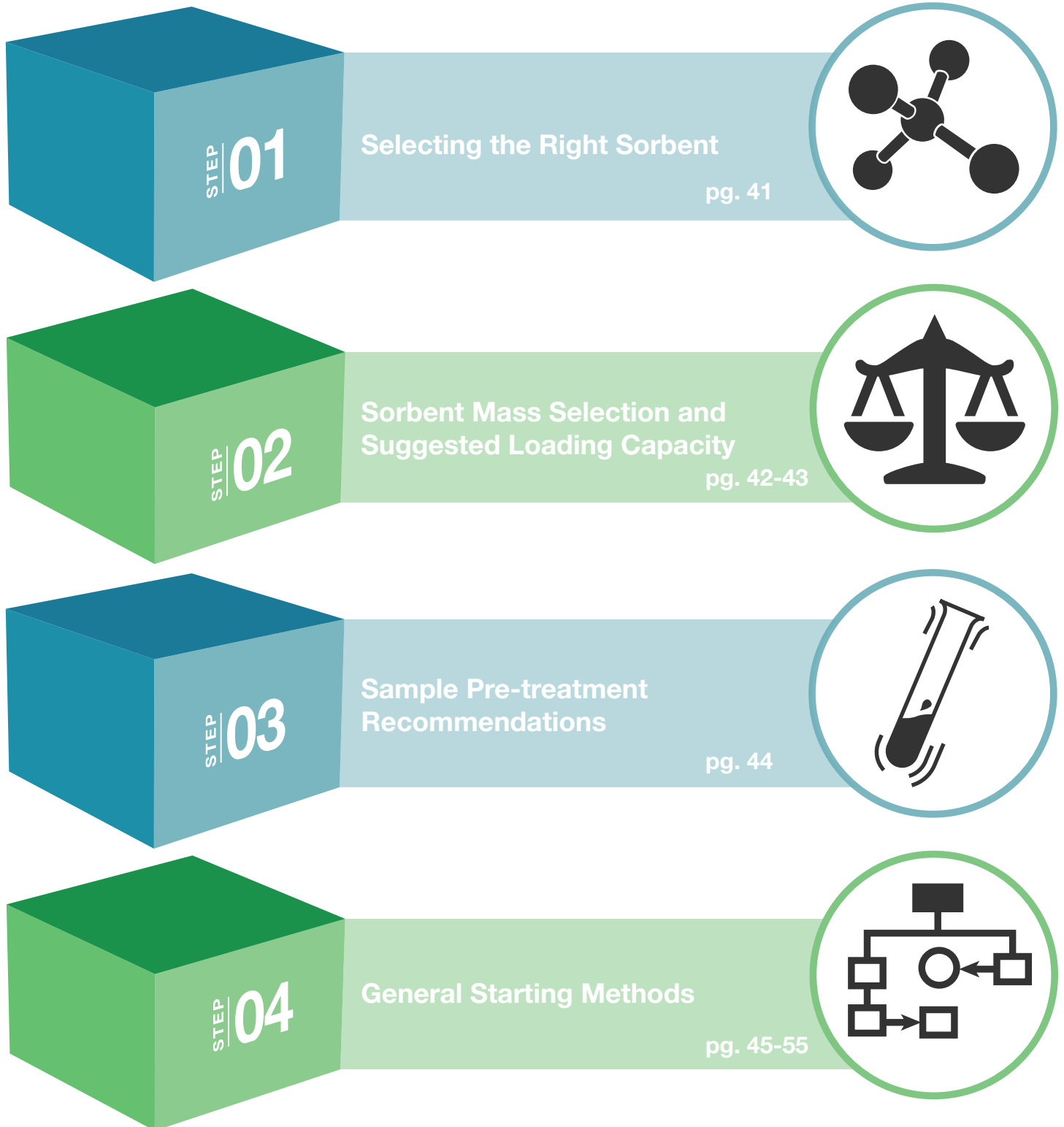
- Targeted analyte extraction for clean extracts
- Concentration of samples for better chromatographic results
- Solvent switching for GC or LC compatibility
- Clean extracts lead to longer column lifetime and better chromatographic results

[www.phenomenex.com/SPE](http://www.phenomenex.com/SPE)

**Try Strata-X PRO SPE to save 40%  
time and achieve cleaner results!  
Learn more on pages 57-59**

**Learn more about SPE for  
Biopharmaceutical samples  
pages 62-65**

# 4 Steps to Solid Phase Extraction Method Development

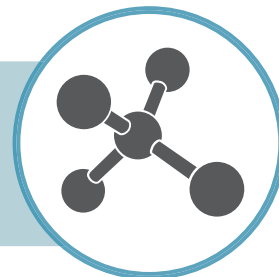






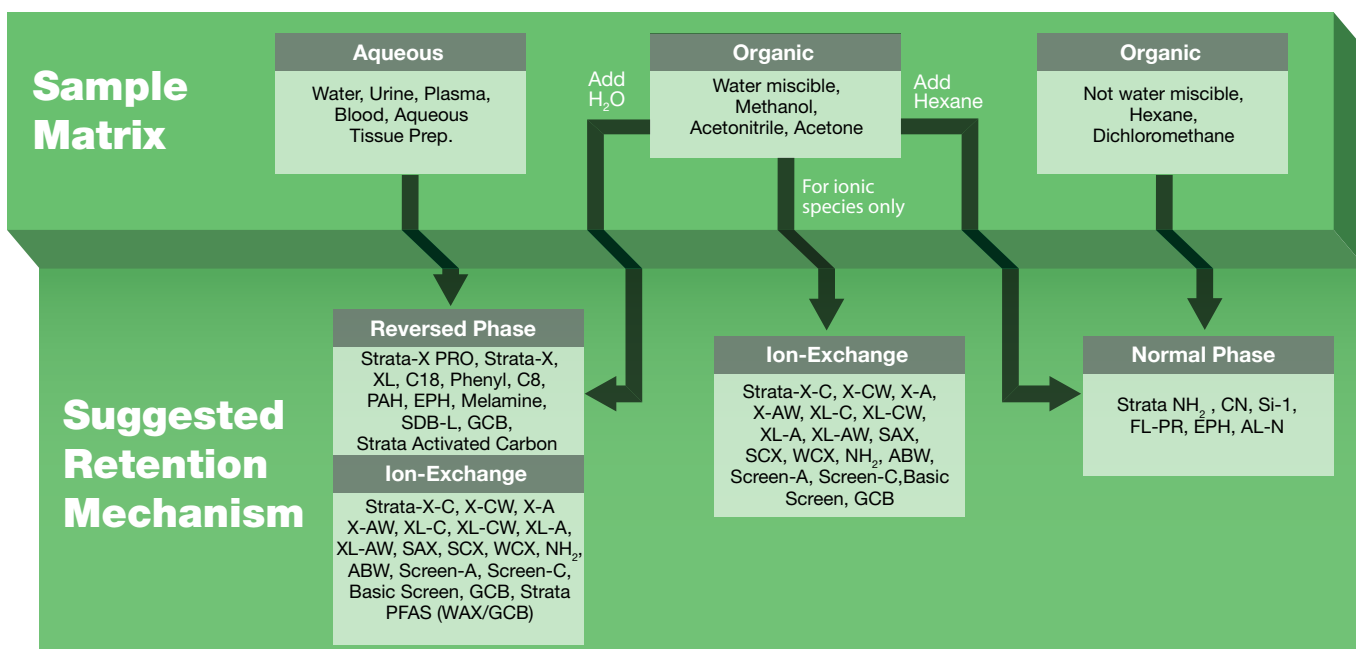
## STEP 01

### Selecting The Right Sorbent: Strata™ Silica-Based and Strata-X Polymer-Based Sorbents



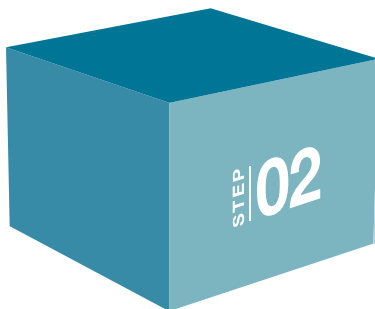
#### Identify the Possible SPE Retention Mechanism

Reversed Phase (RP), Ion-Exchange (IEX) or Normal Phase (NP)  
The sample solvent composition will guide you towards an appropriate SPE mechanism.

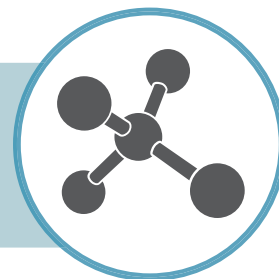


Once the general mechanism is identified, it will be necessary to identify the most specific Strata or Strata-X sorbent by matching the analyte functional groups to the sorbent functional group.

SPE Mechanism	Analyte Functional Group	Sorbent Functional Group	Strata-X Sorbent	Strata Sorbent
<b>Reversed Phase</b>	R hydrocarbon 	R hydrocarbon 		C18-E, C18-U, C8 C18-T PH, SDBL
	aromatic 	aromatic 	X, XL	
<b>Normal Phase</b>	R - OH hydroxyl	CN polar		CN, NH <sub>2</sub> Si-1, CN, EPH
	R - NH <sub>2</sub> amino	OH polar		
	NR <sub>4</sub> <sup>+</sup> strong RNH <sub>3</sub> <sup>+</sup> weak RSO <sub>3</sub> <sup>-</sup> strong RCO <sub>2</sub> <sup>-</sup> weak	-O <sub>2</sub> C- weak -O <sub>3</sub> S- strong +H <sub>3</sub> N- weak +R <sub>3</sub> N- strong	X-CW, XL-CW X-C X-AW, XL-AW X-A, XL-A	WCX Screen-C, SCX NH <sub>2</sub> Screen-A, SAX



## Selecting The Right Sorbent: Strata™ Silica-Based Sorbents



### SPE Overview

	Strata	Strata-X	Strata-X PRO
Increase Detection Sensitivity by removing matrix contaminants	•	•	•
Increase Column Lifetime by removing matrix contaminants	•	•	•
Quality Guaranteed by more than 20 QA and QC measures	•	•	•
Increase Reproducibility with robust methods	•	•	•
Save Time by processing multiple samples simultaneously or automating method	•	•	•
Specific Selectivity for your target analytes	•	•	•
Decreased Solvent Consumption with the highest loadability		•	•
Decreased Blow-down Time with smaller elution volumes		•	•
Decreased Sample Variation with deconditioning resistant sorbent		•	•
pH Stable from 1-14		•	•

### Select Your Particle and Pore Size

	Strata-X, X-C, X-A, X-CW, X-AW	Strata-XL, XL-C, XL-A, XL-CW, XL-AW
Particle & Pore Size	33 µm, 85 Å	100 µm, 300 Å
High Concentration Samples	•	
Small Target Analytes (< 10 kDa)	•	
Large Target Analytes (> 10 kDa)		•
Large Volume Samples		•
Viscous Samples		•

Additional Matrix Removal Technology

bullet point should only be in Strata-X PRO column

### Polymer-Based Sorbents Loading Capacities

Sample Matrix	Sorbent Mass	Strata-X, X-C, X-CW, X-A, X-AW	Strata-XL, XL-C, XL-CW, XL-A, XL-AW
Blood, serum, plasma	30 mg	250 µL	125 µL
Urine	30 mg	1 mL	500 µL
Filtered tissue homogenates	60 mg	100 mg	50 mg
Environmental Samples	Sorbent Mass	Strata-X, X-C, X-CW, X-A, X-AW	Strata-XL, XL-C, XL-CW, XL-A, XL-AW
Water (particulate-free) drinking	200 mg	100 - 400 mL	50 - 200 mL
Water (particulate-laden) rivers, runoff, etc.	500 mg	100 - 400 mL	50 - 200 mL
Soil extracts	500 mg	100 g	50 g

### Sorbent Wash and Elution Volumes\*

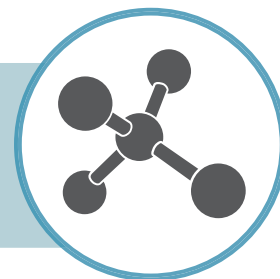
The volume of solvent needed for the wash and elution steps is directly related to the mass of sorbent in the SPE tube and more specifically the “bed volume” of the SPE device. Typically 4 – 16 bed volumes are used in SPE methods.

strata <sup>X</sup> Sorbent Mass	Sorbent Mass											
	2mg	10mg	30mg	60mg	100mg	150mg	200mg	500mg	1g	2g	5g	10g
Practical Minimum Wash and Elution Volume 4 bed volumes	25µL	100µL	300µL	600µL	1 mL	1.5mL	2 mL	5 mL	10mL	20mL	50 mL	100mL
Recommended Wash and Elution Volume 8 bed volumes	50µL	200µL	600µL	1.2mL	2mL	3mL	4 mL	10mL	20mL	40mL	100mL	200mL

\*The elution volumes are specific to the chemical nature of the analyte being extracted, its concentration in the sample, the chemical nature of the eluting solvent and the bed mass used. The above is a guideline. An elution study should be conducted to determine the appropriate volume to use.



## Selecting The Right Sorbent: Strata™ Silica-Based Sorbents



### SPE Overview


	Strata	Strata-X	Strata-X PRO
Increase Detection Sensitivity by removing matrix contaminants	•	•	•
Increase Column Lifetime by removing matrix contaminants	•	•	•
Quality Guaranteed by more than 20 QA and QC measures	•	•	•
Increase Reproducibility with robust methods	•	•	•
Save Time by processing multiple samples simultaneously or automating method	•	•	•
Specific Selectivity for your target analytes	•	•	•
Decreased Solvent Consumption with the highest loadability		•	•
Decreased Blow-down Time with smaller elution volumes		•	•
Decreased Sample Variation with deconditioning resistant sorbent		•	•
pH Stable from 1-14		•	•

### Silica-Based Sorbents Loading Capacities

Sample Matrix	Sorbent Mass
Blood, serum, plasma	50 mg sorbent per 250 $\mu$ L
Urine	50 mg sorbent per 500 $\mu$ L
Filtered tissue homogenates	100 mg sorbent per 100 mg tissue
Environmental Samples	Sorbent Mass
Water (particulate-free) drinking	500 mg/100 mL - 500 mL sample
Water (particulate-laden) rivers, runoff, etc.	1 g/100 mL - 500 mL sample
Soil extracts	1 g/100 g of soil extract

### Sorbent Wash and Elution Volumes\*

The volume of solvent needed for the wash and elution steps is directly related to the mass of sorbent in the SPE tube and more specifically the “bed volume” of the SPE device. Typically 4 – 16 bed volumes are used in SPE methods.

 Sorbent Mass	10 mg	50 mg	100 mg	150 mg	200 mg	500 mg	1 g	2 g	5 g	10 g
	Practical Minimum Wash and Elution Volume 4 bed volumes	60 $\mu$ L	300 $\mu$ L	600 $\mu$ L	900 $\mu$ L	1.2 mL	3 mL	6 mL	12 mL	30 mL
Recommended Wash and Elution Volume 8 bed volumes	120 $\mu$ L	600 $\mu$ L	1.2 mL	1.8 mL	2.4 mL	6 mL	12 mL	24 mL	60 mL	120 mL

\*The elution volumes are specific to the chemical nature of the analyte being extracted, its concentration in the sample, the chemical nature of the eluting solvent and the bed mass used. The above is a guideline. An elution study should be conducted to determine the appropriate volume to use.

STEP 03

Sample Pre-treatment Recommendations



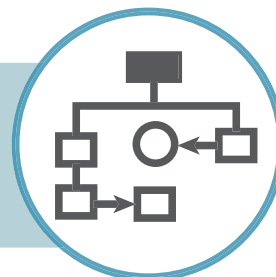
Reproducible, high efficiency solid phase extraction requires that the sample be made liquid prior to loading onto a SPE device. The SPE sample should meet the following conditions:

- Liquid of low viscosity (to pass through the cartridge)
- Low solids or particulate contaminants (to prevent clogging)
- Solvent composition that is suitable for retention (each mechanism has different matrix solvent composition requirements for proper retention)

Biological Samples (liquid)		
	<b>Urine, Whole blood, Serum, Plasma, Bile, etc.</b>	Dilute sample 1:2 with appropriate buffer, precipitate proteins if proteinaceous (ZnSO <sub>4</sub> , ACN), hydrolyze urinary glucuronides, disruption of protein binding (sonication, enzymatic, acids/bases).
	<b>Oral fluid, Saliva</b>	Pre-treat sample according to manufacturers recommendations. Add appropriate buffer for analyte extraction and vortex before loading onto SPE cartridge.
Biological Samples (solid)		
	<b>Organ tissues, Feces, GI contents</b>	Homogenize with organic or aqueous solvent depending upon analyte solubility. Settle, decant, centrifuge or filter supernatant. Perform direct Matrix Solid Phase Dispersion (MSPD) extraction on tissue.
	<b>Hair</b>	Cut hair into very small pieces and add appropriate buffer and internal standard. Proceed to incubate for specified amount of time.
Sample Matrix		
	<b>Water (waste, river, etc.)</b>	Buffer to appropriate pH and filter particulates from sample.
	<b>Soil, Sludge</b>	Homogenize with organic or aqueous solvent depending upon analyte solubility. Settle, decant and filter supernatant; perform Soxhlet extraction.
	<b>Ointments, Creams</b>	<b>Oil-based</b> Dissolve in non-polar organic (hexane) and extract via polar SPE. <b>Water-based</b> Dissolve in water or water miscible organic (methanol) and extract via non-polar SPE.
	<b>Fruit, Vegetable, Herbs, Cannabis</b>	Homogenize with organic or aqueous solvent depending upon analyte solubility and filter supernatant. Use appropriate SPE mechanism for the dissolution solvent (hexane = polar mechanism; aqueous = non-polar mechanism; methanol/ACN = either non-polar or polar after proper dilution).

## STEP 04

## General Starting Methods



## Strata-X Polymeric SPE Phase Overview

- Clean extracts from biological sample matrices
- Streamlined method development and simple processing

Strata-X Phase	Functional Group	Mode	Analyte	Recommended Alternative to Waters®
Strata-X		Reversed Phase	Polar and Non-Polar	Oasis® HLB
Strata-X-C		Reversed Phase and Strong Cation-Exchange	Bases	Oasis MCX
Strata-X-CW		Reversed Phase and Weak Cation-Exchange	Bases (including Quaternary Amines)	Oasis WCX
Strata-X-A		Reversed Phase and Strong Anion-Exchange	Acids	Oasis MAX
Strata-X-AW		Reversed Phase and Weak Anion-Exchange	Acids (including Sulfonic acids)	Oasis WAX
Strata-XL		Large Particle Reversed Phase	Polar and Non-Polar	Oasis HLB
Strata-XL-C		Large Particle Reversed Phase and Strong Cation-Exchange	Bases	Oasis MCX
Strata-XL-CW		Large Particle Reversed Phase and Weak Cation-Exchange	Bases (including Quaternary Amines)	Oasis WCX
Strata-XL-A		Large Particle Reversed Phase and Strong Anion-Exchange	Acids	Oasis MAX
Strata-XL-AW		Large Particle Reversed Phase and Weak Anion-Exchange	Acids (including Sulfonic acids)	Oasis WAX

**SPE Method Development Tool**

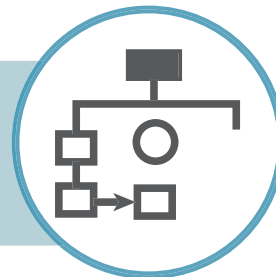
Develop SPE methods for sample cleanup and concentration in under one minute.  
[www.phenomenex.com/mdtool](http://www.phenomenex.com/mdtool)

**Microelution SPE**

For small volume samples without the dry down step for added sensitivity.  
[www.phenomenex.com/Microelution](http://www.phenomenex.com/Microelution)

STEP 04

General Starting Methods



# General Starting Methods

## Strata-X / Strata-XL Reversed Phase

### for Neutral Compounds



**Condition**

1 mL Methanol

**Equilibrate**

1 mL Water

**Load**

Diluted Sample

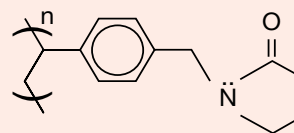
**Wash**

1 mL 5-60 % Methanol

**Elute**

2x 500  $\mu$ L 2 % Formic Acid in Methanol/Acetonitrile

### Reversed Phase



### Working with Drugs of Abuse?

**Strata-X-Drug B and Strata-X-Drug N**  
Specialized sorbents for basic and neutral drugs of abuse testing.

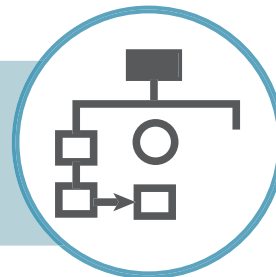
**Strata-X Drug B Plus**  
In-well hydrolysis and solid phase extraction for drugs of abuse extracted from urine.



\*Based on 30 mg/1 mL sorbent mass. The above is a convenient starting point for SPE method development. Further optimization may be required to tailor the method to your specific needs.

STEP 04

## General Starting Methods

**Strata™-X-C / Strata-XL-C**

Strong Cation-Exchange &amp; Reversed Phase

**for Bases with  $pK_a \leq 10.5$** **Condition**

1 mL Methanol

**Equilibrate**

1 mL Acidified Water

**Load**

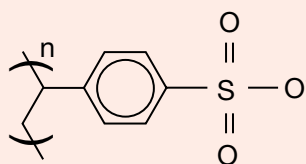
Diluted Acidified Sample

**Wash**

1 mL 0.1 N HCl in water (collect this fraction to analyze Polar Neutrals)

**Wash**

1 mL 0.1 N HCl in Methanol (collect this fraction to analyze Neutrals/Acids)

**Elute Bases**2x 500  $\mu$ L 5 %  $NH_4OH$  in Methanol**Strong Cation-Exchange:  
sulfonic acid ligand****Strata-X-CW / Strata-XL-CW**

Weak Cation-Exchange &amp; Reversed Phase

**for Bases with  $pK_a > 8$** **Condition**

1 mL Methanol

**Equilibrate**

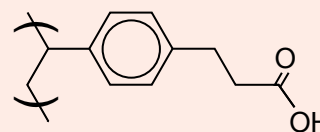
1 mL Water, pH 6-7

**Load**

Diluted Sample, pH 6-7

**Wash**

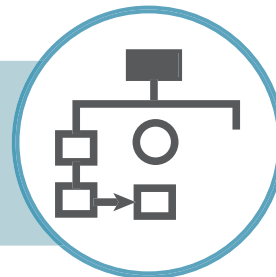
1 mL Water, pH 6-7

**Wash**1 mL Methanol  
(collect this fraction to analyze Neutrals/Acids)**Elute Any Base**2x 500  $\mu$ L 5 % Formic Acid in Methanol**Elute Weak Bases**2x 500  $\mu$ L 5 %  $NH_4OH$  in Methanol**Weak Cation-Exchange:  
carboxylic acid ligand**

\*Based on 30 mg/1 mL sorbent mass. The above is a convenient starting point for SPE method development. Further optimization may be required to tailor the method to your specific needs.

STEP 04

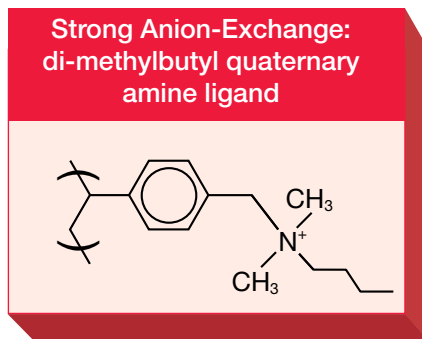
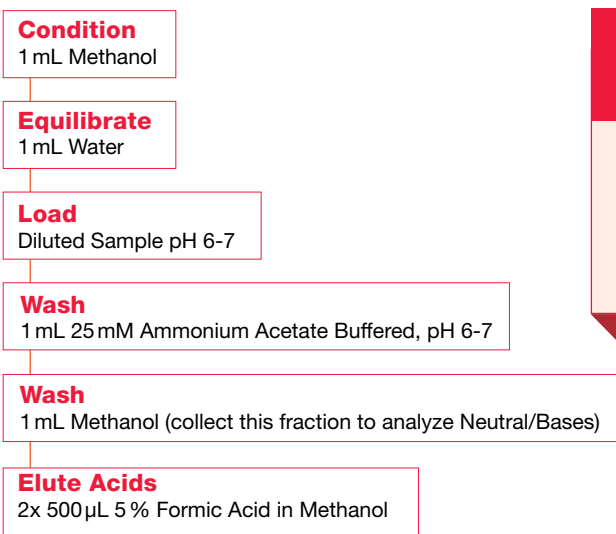
General Starting Methods



**Strata-X-A / Strata-XL-A**

Strong Anion-Exchange & Reversed Phase

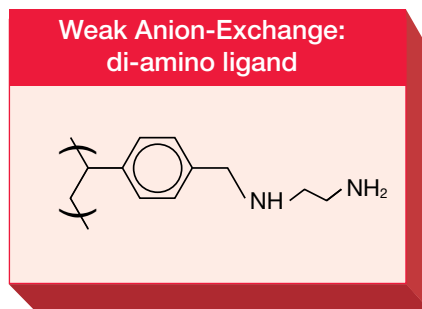
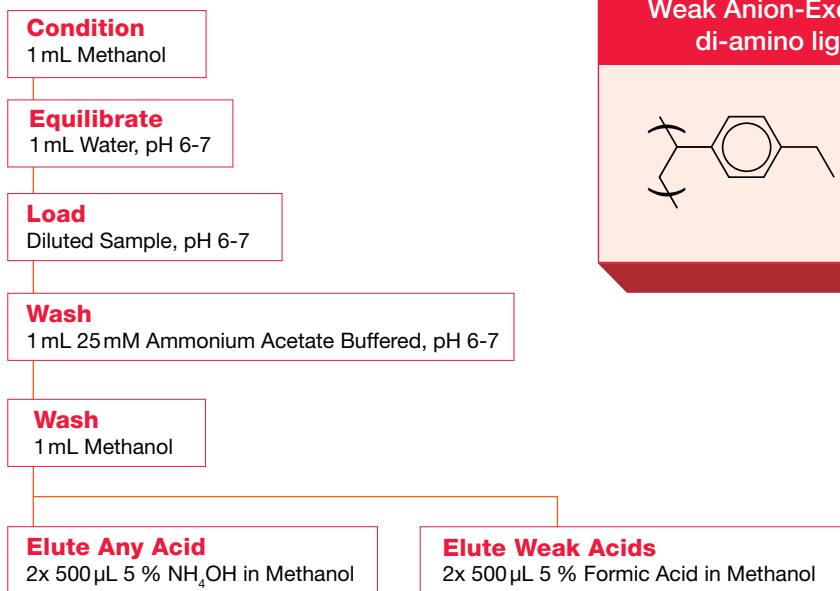
**for Acids with  $pK_a > 2$**



**Strata-X-AW / Strata-XL-AW**

Weak Anion-Exchange & Reversed Phase

**for Acids with  $pK_a \leq 5$**





# Need help getting your method started?

Watch a step by step for a SPE Tutorial:



Easy as 1-2-3



Develop a method in less than a minute:

[www.phenomenex.com/SPEMethodDevelopment](http://www.phenomenex.com/SPEMethodDevelopment)

Still have additional questions about SPE?

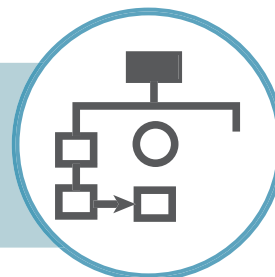
[Chat with a live technical expert](#)

[www.phenomenex.com/chat](http://www.phenomenex.com/chat)



# STEP 04

## General Starting Methods



# Strata™ Silica-Based SPE Sorbents

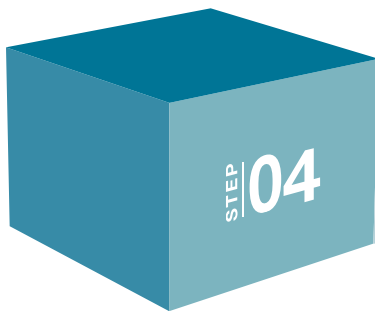
- Extremely reproducible from batch-to-batch
- Formats for large and small volume samples

### Reversed Phase Sorbents

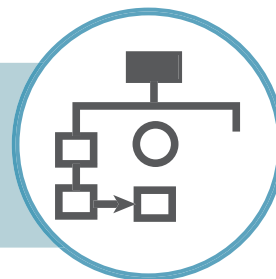
Phase	Phase Benefits	Sorbent Chemistry	Recommended Method (see pp. 54-55)
C18-E	Extraction of hydrophobic molecules		METHOD 1
C18-U	Enhanced cleanup of hydrophobic compounds that contain hydroxy or amine functional groups		METHOD 1
C18-T	Wide pore for the extraction of large hydrophobic molecules (up to 75 kDa)		METHOD 1
C8	Extraction of extremely hydrophobic compounds that are retained too tightly on C18-E		METHOD 1
Phenyl (PH)	Extraction of aromatic compounds		METHOD 1
CN	Extraction of polar compounds		METHOD 1
SDB-L	Extraction of non-polar and polar compounds; pH resistant sorbent		METHOD 1

### Normal Phase Sorbents

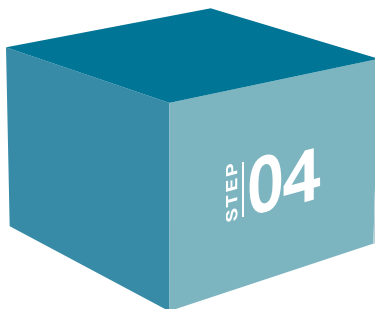
Si-1 (Silica)	Extraction of polar compounds that are similar in structure		METHOD 6
FL-PR (Florisil®)	Extraction of pesticides	Florisil	METHOD 6
NH <sub>2</sub>	Extraction of strong anions		METHOD 6
CN	Extraction of polar compounds		METHOD 6



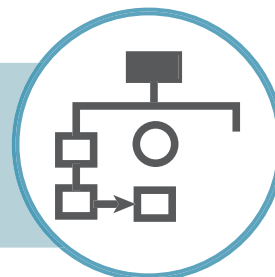
## General Starting Methods



Waters™ Sep-Pak®	Agilent® Bond Elut®	Biotage® IST® ISOLUTE®	UCT®	CleanScreen® StyreScreen®
tC18	Bond Elut C18	C18 (EC)	C18	DSC-18
	Bond Elut C18-OH	C18		
C18	Bond Elut C18-EWP			DSC-18Lt
C8	Bond Elut C8	C8(EC)	C8	DSC-8
	Bond Elut PH	PH	Phenyl	DSC-Ph
CN	Bond Elut Cyano (CN-E)	CN	CN	DSC-CN
	Bond Elut ENV Bond Elut LMS	101	STET DVB	DSC-PS/DVB
Silica	Bond Elut SI	SI	Silica	DSC-Si
Florisil®	Bond Elut Florisil®	FL	Florisil® PR	ENVI-Florisil®
NH <sub>2</sub>	Bond Elut Aminopropyl (NH <sub>2</sub> )	NH <sub>2</sub>	Amino Propyl	DSC-NH <sub>2</sub>
CN	Bond Elut Cyano (CN-E)	CN	CN	DSC-CN



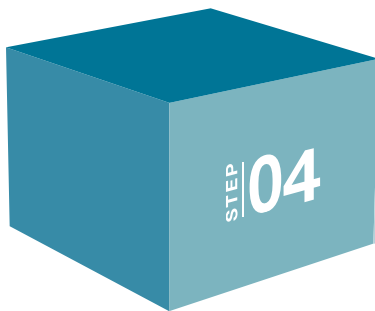
## General Starting Methods



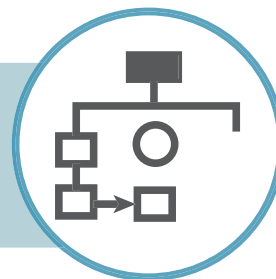
# Strata™ Silica-Based SPE Sorbents (*cont'd*)

Ion-Exchange Sorbents			
Phase	Phase Benefits	Sorbent Chemistry	Recommended Method (see pp. 54-56)
ABW	Fractionation of neutral compounds such as amides from acidic and basic analytes		<a href="#">Inquire</a>
SAX	Extraction of weak anions		<a href="#">METHOD 5</a>
SCX	Extraction of 1°, 2°, and 3° amines		<a href="#">METHOD 3</a>
WCX	Extraction of quaternary amines		<a href="#">METHOD 2</a>
Screen-C	Mixed-mode cation-exchange that also provides hydrophobic retention		<a href="#">METHOD 3</a>
Screen-C GF	Large particle size, mixed-mode cation-exchange that also provides hydrophobic retention		<a href="#">METHOD 3</a>
Screen-A	Mixed-mode anion-exchange that also provides hydrophobic retention		<a href="#">METHOD 5</a>
NH <sub>2</sub>	Extraction of strong anions		<a href="#">METHOD 4</a>

Special Sorbents			
Phase	Phase Benefits	Sorbent Chemistry	Recommended Method (see pp. 54-56)
Alumina-N (AL-N)	Extraction of polar compounds from food and environmental samples	Proprietary	<a href="#">METHOD 6</a>
EPH (Extractable Petroleum Hydrocarbons)	Fractionation of aliphatic and aromatic hydrocarbons from environmental samples		<a href="#">METHOD 6</a>
Activated Carbon	Extraction of polar analytes in aqueous matrices		<a href="#">METHOD 7</a>
GCB	Extraction of pesticides from water, fruits and vegetables; High polar and non-polar analytes		<a href="#">METHOD 8</a>
PFAS (WAX/GCB)	Fast SPE extraction of Polyfluoroalkyl Substances (PFAS) from diverse matrices	Proprietary	<a href="#">METHOD 9</a>



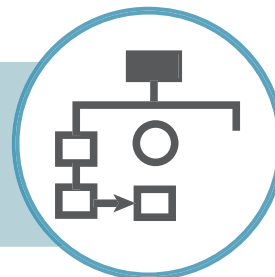
## General Starting Methods



Waters Sep-Pak	Agilent® Bond Elut®	Biotage® IST® ISOLUTE®	UCT®	CleanScreen® StyreScreen®
	Bond Elut SAX	SAX	Quaternary Amine	DSC-SAX
	Bond Elut SCX	SCX-3	Benzene Sulfonic Acid	DSC-SCX
	Bond Elut CBA	CBA	Carboxylic Acid	DSC-WCX
	Bond Elut Certify®	HGX	Clean Screen® DAU	
	Bond Elut Certify I HF		Xtract® DAU	
	Bond Elut Certify II	HAX	Clean Screen THC	
NH <sub>2</sub>	Bond Elut Aminopropyl (NH <sub>2</sub> )	NH <sub>2</sub>	Amino Propyl	DSC-NH <sub>2</sub>
Waters	UCT	Restek	MilliporeSigma/Supelco®	
Sep-Pack® AC2	Enviro-Clean® Method 521 2000mg	Resprep Method Specific SPE Cartridge Activated Charcoal 6mL/2g	Superclean™ Coconut Charcoal SPE Tube	
	Graphitized Carbon Black(GCB)	GCB	GCB	

STEP 04

General Starting Methods



**Strata™**  
Reversed Phase

**METHOD 1**



**Condition**  
1 mL Methanol

**Equilibrate**  
1 mL DI Water

**Load**  
Pre-treated sample

**Wash**  
1 mL 5% Methanol in DI Water, dry under vacuum for 2-5 min

**Elute**  
1 mL Methanol

**Strata WCX**

Weak Cation - Exchange

**METHOD 2**



**Condition**  
1 mL Methanol

**Equilibrate**  
1 mL DI Water, pH 6-7

**Load**  
Pre-treated sample, pH 6-7

**Wash**  
1 mL Water, pH 6-7

**Wash**  
1 mL Methanol, dry under vacuum for 2-5 min

**Elute Any Base**  
1 mL 5% Formic Acid in Methanol

**Elute Weak Bases**  
1 mL 5% NH<sub>4</sub>OH in Methanol

**Strata SCX**

Strong Cation - Exchange

**METHOD 3**



**Condition**  
1 mL Methanol

**Equilibrate**  
1 mL Acidified Water

**Load**  
Pre-treated sample (acidified)

**Wash**  
1 mL 0.1N HCl in Water

**Wash**  
1 mL 0.1N HCl in Methanol, dry under vacuum for 2-5 min

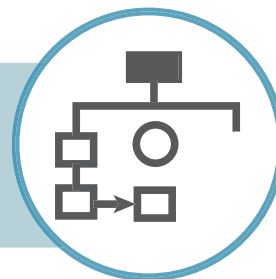
**Elute**  
1 mL 5% NH<sub>4</sub>OH in Methanol

\*100mg sorbent mass



## STEP 04

### General Starting Methods



#### Strata NH<sub>2</sub> (WAX) Weak Anion - Exchange

**METHOD**  
4



**Condition**

1 mL Methanol

**Equilibrate**

1 mL Water, pH 6-7

**Load**

Pretreated sample, pH 6-7

**Wash**

1 mL 25 mM Ammonium Acetate Buffer, pH 6-7

**Wash**

1 mL Methanol, dry under vacuum for 2-5 min

**Elute Any Acid**

1 mL 5% NH<sub>4</sub>OH in Methanol

**Elute Weak Acids**

1 mL 5% Formic Acid in Methanol

#### Strata SAX Strong Anion - Exchange

**METHOD**  
5



**Condition**

1 mL Methanol

**Equilibrate**

1 mL Water

**Load**

Pretreated sample, pH 6-7

**Wash**

1 mL 25 mM Ammonium Acetate Buffer, pH 6-7

**Wash**

1 mL Methanol, dry under vacuum for 2-5 min

**Elute**

1 mL 5% Formic Acid in Methanol

#### Strata Normal Phase

**METHOD**  
6



**Condition**

IPA / DCM

**Equilibrate**

Hexane

**Load**

Pretreated sample

**Wash**

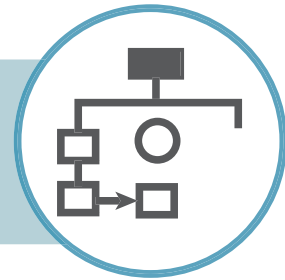
5% DCM in Hexane

**Elute**

1:1 Hexane / DCM or 1:1 Hexane / IPA

STEP 04

General Starting Methods



**Strata Activated Carbon**

Reversed Phase

**METHOD**  
7



**Condition 1**  
2x 10 mL Methylene Chloride

**Condition 2**  
2x 10 mL Methanol

**Equilibrate**  
2x 10 mL Water

**Load**  
500 mL water sample spiked with internal standard. Dry for 10 min.

**Elute**  
3x 3 mL Methylene Chloride

Remove moisture - Pass the elute through Methylene Chloride prewetted Strata Sodium Sulfate Giga™ tubes, 5 g/20 mL and wash with 5 mL Methylene Chloride.

Reconstitute - Evaporate solvent under Nitrogen to required volume and reconstitute with Methylene Chloride

**GCB**

Weak Cation - Exchange

**METHOD**  
8



**Condition**  
1 mL Methanol

**Equilibrate**  
5mL x2 Water

**Load**  
Pre-treated sample

**Collect Loaded Sample**

**PFAS (WAX/GCB)**

Strong Cation - Exchange

**METHOD**  
9



**Condition 1**  
1: 4 mL 0.3% Ammonium hydroxide

**Condition 2**  
4 mL Methanol

**Equilibrate**  
4 mL Water

**Load**  
Add sample at 4 mL/min\*

**Wash**  
2x 4 mL Water

**Elute**  
4 mL 0.3% Ammonium hydroxide in Methanol

**Evaporate**  
to dryness and reconstitute to 1 mL with Methanol/Water (96:4)




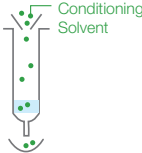


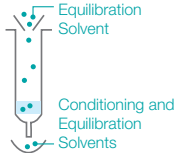

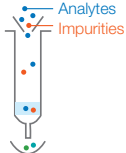
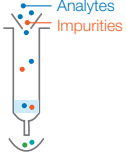
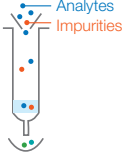
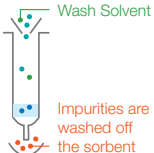
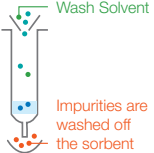

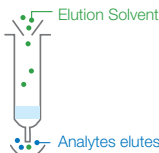

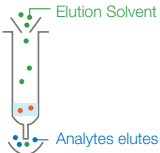
\*100mg sorbent mass



# Strata-X PRO

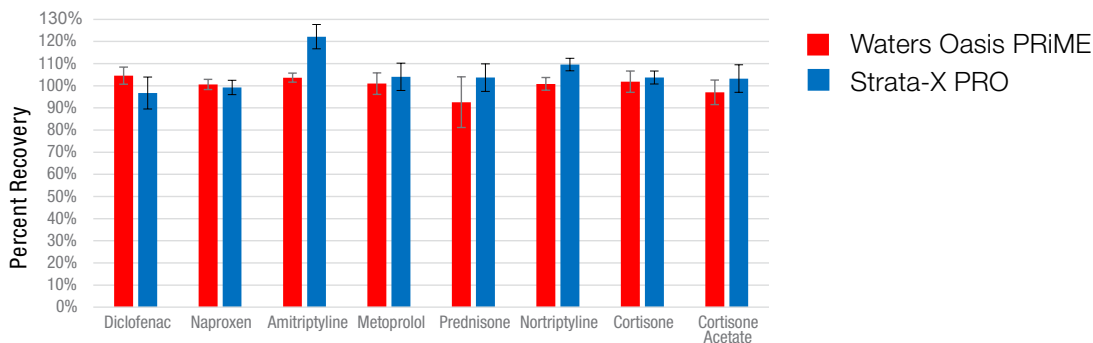


An innovative solid phase extraction (SPE) sorbent that offers a faster, cleaner way to extract your samples, completely revolutionizing traditional SPE methods. Strata-X PRO offers improved and rugged polymeric sorbent performance combined with matrix removal technology for a revolutionary solution. With a faster SPE method, it results in at least 40% reduction in time on your SPE protocol. Less steps with no conditioning or equilibration creates a fast SPE method without losing out on the importance of SPE: cleaning up your samples.

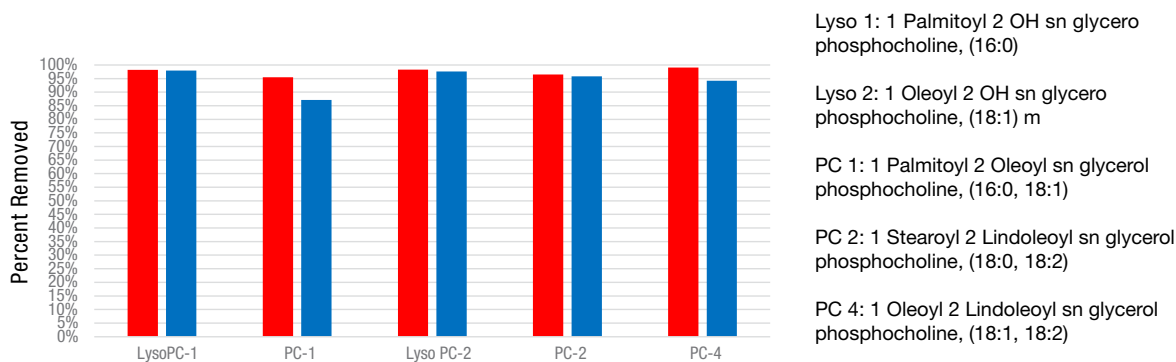
Traditional SPE	STRATA-X PRO	STRATA-X PRO
		
<p><b>1</b> CONDITION</p> 		
<p><b>2</b> EQUILIBRATE</p> 	<p><b>NO CONDITION OR EQUILIBRATION STEPS!</b></p> 	
<p><b>3</b> LOAD SAMPLE</p> 	<p><b>1</b> LOAD SAMPLE</p> 	<p><b>1</b> LOAD SAMPLE</p> 
<p><b>4</b> WASH IMPURITIES</p> 	<p><b>2</b> WASH IMPURITIES</p> 	
<p><b>5</b> ELUTE ANALYTES</p> 	<p><b>3</b> ELUTE ANALYTES</p> 	<p><b>2</b> RINSE</p> 



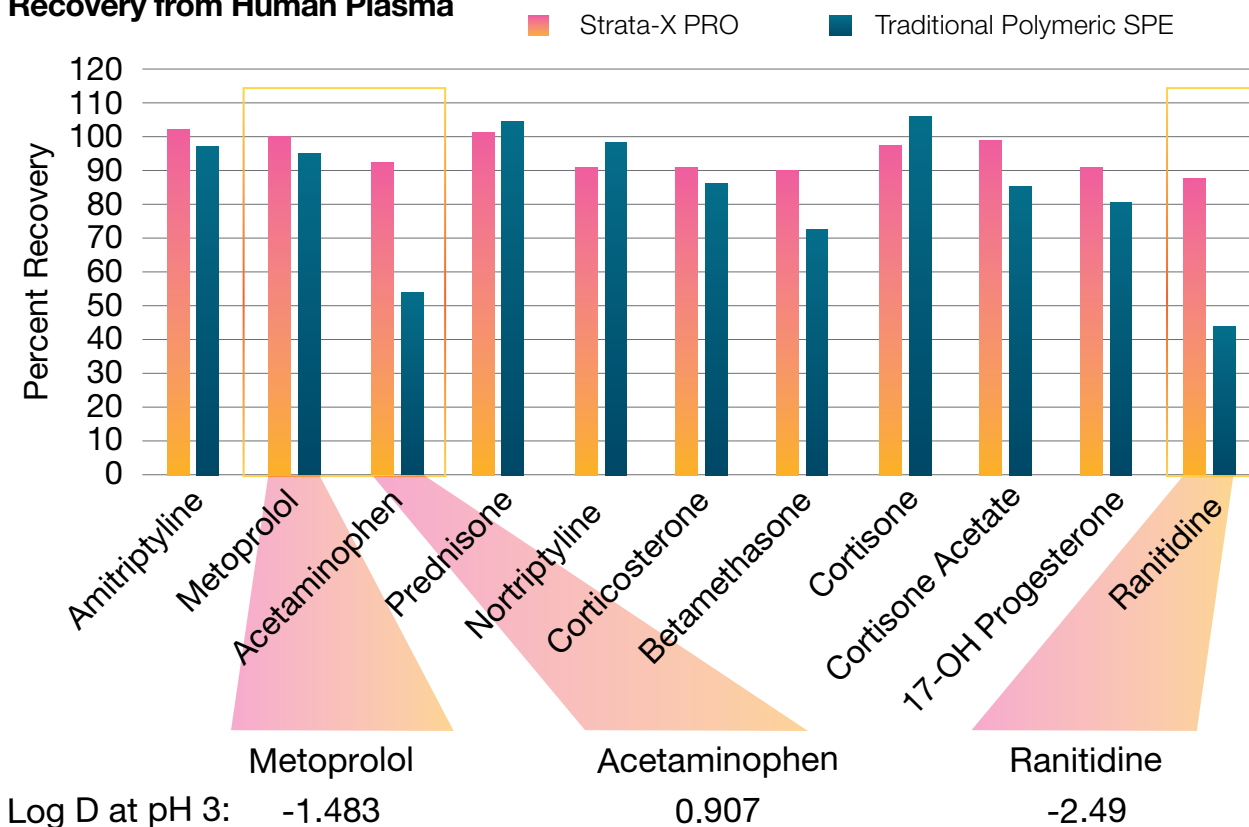
## Recoveries of Analytes From Plasma for Strata-X PRO and Waters™ Oasis PRiME



## Comparison of Removal of Phospholipids from Plasma

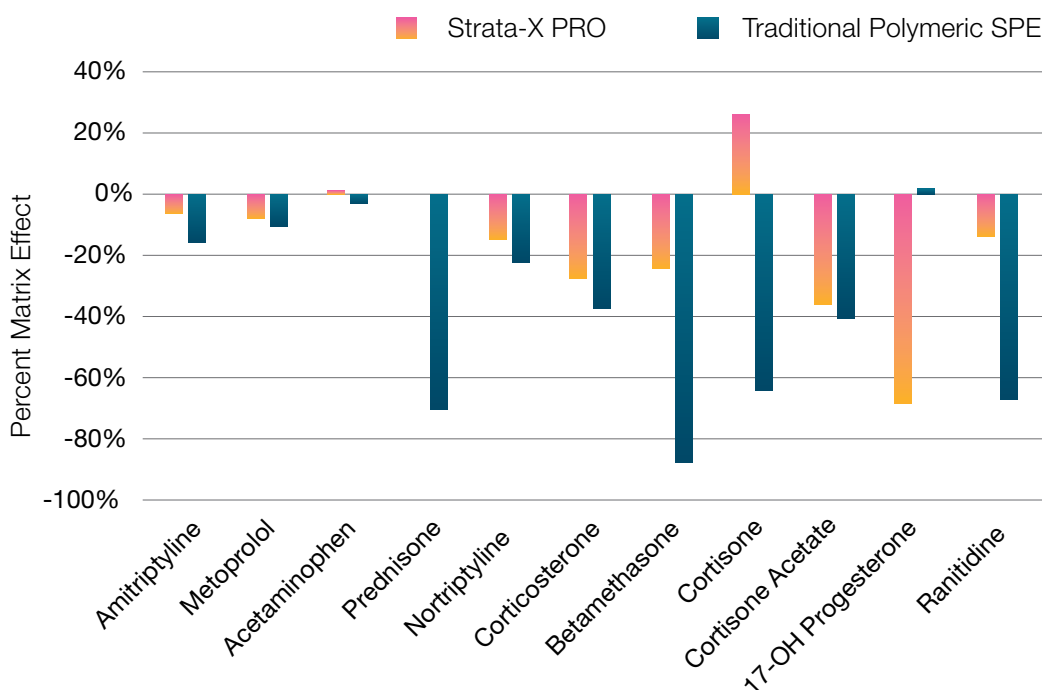


## Recovery from Human Plasma




**For extremely polar analytes, Strata-X PRO provides higher recoveries!**

## Matrix Effects



## Ordering Information

### Strata-X PRO SPE

Format	Sorbent Mass	Part Number	Unit
<b>Tube</b>			
	10 mg	<a href="#">8B-S536-AAK</a>	1 mL (100/box)
	30 mg	<a href="#">8B-S536-TAK</a>	1 mL (100/box)
	30 mg	<a href="#">8B-S536-TBJ</a>	3 mL (50/box)
	60 mg	<a href="#">8B-S536-UBJ</a>	3 mL (50/box)
	200 mg	<a href="#">8B-S536-FBJ</a>	3 mL (50/box)
	100 mg	<a href="#">8B-S536-ECH</a>	6 mL (30/box)
	200 mg	<a href="#">8B-S536-FCH</a>	6 mL (30/box)
	500 mg	<a href="#">8B-S536-HCH</a>	6 mL (30/box)

<b>96-Well Plate</b>			
	10 mg/well	<a href="#">8E-S536-AGA</a>	ea
	30 mg/well	<a href="#">8E-S536-TGA</a>	ea
	60 mg/well	<a href="#">8E-S536-UGA</a>	ea

<b>96-Well Microelution Plate</b>			
	2 mg/well	<a href="#">8M-S536-4GA</a>	ea

### Accessories

Part No.	Description	Unit
<b>Collection Plates (deep well, polypropylene)</b>		
<a href="#">AH0-7192</a>	96-Well Collection Plate 350 µL/well	50/pk
<a href="#">AH0-7193</a>	96-Well Collection Plate 1 mL/well	50/pk
<a href="#">AH0-7194</a>	96-Well Collection Plate 2 mL/well	50/pk
<a href="#">AH0-8635</a>	96-Well Collection Plate, 2 mL Square/Round-Conical	50/pk
<a href="#">AH0-8636</a>	96-Well Collection Plate, 2 mL Round/Round, 8 mm	50/pk
<a href="#">AH1-7025</a>	96-Well Collection Plate, 1 mL/well Round, 7 mm	50/pk
<a href="#">AH0-9332</a>	96-Well Collection Plate, 1.2 mL/well Round Well Round Bottom	50/pk
<a href="#">AH0-9333</a>	96-Well Collection Plate, 0.5 mL/well V-Bottom, 7 mm Sterile	50/pk
<a href="#">AH0-9341</a>	96-Well Collection Plate, 0.5 mL/well Conical Bottom 7 mm	50/pk
<a href="#">AH1-7036</a>	96-Well Low-Bind Collection Plate, 2 mL/well Round Well Conical Bottom (glass lined)	120/pk

<b>Sealing Mats</b>		
<a href="#">AH0-8597</a>	Sealing Mats, Pierceable, 96-Square Well, Silicone	50/pk
<a href="#">AH0-8598</a>	Sealing Mats, Pre-Slit, 96-Square Well, Silicone	50/pk
<a href="#">AH0-8631</a>	Sealing Mats, Pierceable, 96-Round Well 7 mm, Silicone	50/pk
<a href="#">AH0-8632</a>	Sealing Mats, Pre-Slit, 96-Round Well 7 mm, Silicone	50/pk
<a href="#">AH0-8633</a>	Sealing Mats, Pierceable, 96-Round Well 8 mm, Silicone	50/pk
<a href="#">AH0-8634</a>	Sealing Mats, Pre-Slit, 96-Round Well 8 mm, Silicone	50/pk
<a href="#">AH0-7362</a>	Sealing Tape Pad	10/pk

<b>Vacuum Manifolds</b>		
<b>VM12</b>	SPE 12-Position Vacuum Manifold Set, for tubes	ea
<b>VM24</b>	SPE 24-Position Vacuum Manifold Set, for tubes	ea
<a href="#">AH0-8950</a>	96-Well Plate Manifold, Universal with Vacuum Gauge	ea

\*Manifolds include: Vacuum-tight glass chamber, vacuum gauge assembly, polypropylene lid with gasket, male and female luers and yellow end plugs, stopcock valves, collection rack assemblies, polypropylene needles, lid support legs. Waste container included with 12-positive manifold.

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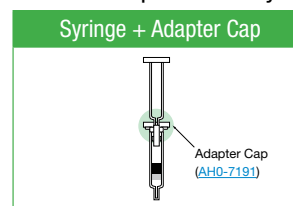
[www.phenomenex.com/behappy](http://www.phenomenex.com/behappy)

## SPE Tubes Ordering Info

### Process Multiple Samples at Once



### Process Samples Manually



### Strata Silica-Based Sorbents

Tubes	1 mL (100/box)		3 mL (50/box)			6 mL (30/box)		
	50 mg	100 mg	100 mg	200 mg	500 mg	200 mg	500 mg	1 g
C18-E	<a href="#">8B-S001-DAK</a>	<a href="#">8B-S001-EAK</a>	<a href="#">8B-S001-EBJ</a>	<a href="#">8B-S001-FBJ</a>	<a href="#">8B-S001-HBJ</a>	<a href="#">8B-S001-FCH</a>	<a href="#">8B-S001-HCH</a>	<a href="#">8B-S001-JCH</a>
C18-U	—	<a href="#">8B-S002-EAK</a>	—	<a href="#">8B-S002-FBJ</a>	<a href="#">8B-S002-HBJ</a>	—	<a href="#">8B-S002-HCH</a>	<a href="#">8B-S002-JCH</a>
C18-T	—	<a href="#">8B-S004-EAK</a>	—	<a href="#">8B-S004-FBJ</a>	<a href="#">8B-S004-HBJ</a>	—	<a href="#">8B-S004-HCH</a>	<a href="#">8B-S004-JCH</a>
C8	—	<a href="#">8B-S005-EAK</a>	—	<a href="#">8B-S005-FBJ</a>	<a href="#">8B-S005-HBJ</a>	—	<a href="#">8B-S005-HCH</a>	<a href="#">8B-S005-JCH</a>
Phenyl	—	<a href="#">8B-S006-EAK</a>	—	<a href="#">8B-S006-FBJ</a>	<a href="#">8B-S006-HBJ</a>	—	<a href="#">8B-S006-HCH</a>	<a href="#">8B-S006-JCH</a>
SCX	—	<a href="#">8B-S010-EAK</a>	<a href="#">8B-S010-EBJ</a>	<a href="#">8B-S010-FBJ</a>	<a href="#">8B-S010-HBJ</a>	—	<a href="#">8B-S010-HCH</a>	<a href="#">8B-S010-JCH</a>
WCX	—	<a href="#">8B-S027-EAK</a>	—	<a href="#">8B-S027-FBJ</a>	<a href="#">8B-S027-HBJ</a>	—	<a href="#">8B-S027-HCH</a>	<a href="#">8B-S027-JCH</a>
SAX	—	<a href="#">8B-S008-EAK</a>	<a href="#">8B-S008-EBJ</a>	<a href="#">8B-S008-FBJ</a>	<a href="#">8B-S008-HBJ</a>	—	<a href="#">8B-S008-HCH</a>	<a href="#">8B-S008-JCH</a>
NH <sub>2</sub>	—	<a href="#">8B-S009-EAK</a>	—	<a href="#">8B-S009-FBJ</a>	<a href="#">8B-S009-HBJ</a>	—	<a href="#">8B-S009-HCH</a>	<a href="#">8B-S009-JCH</a>
CN	—	<a href="#">8B-S007-EAK</a>	—	<a href="#">8B-S007-FBJ</a>	<a href="#">8B-S007-HBJ</a>	—	<a href="#">8B-S007-HCH</a>	<a href="#">8B-S007-JCH</a>
Si-1	—	<a href="#">8B-S012-EAK</a>	—	<a href="#">8B-S012-FBJ</a>	<a href="#">8B-S012-HBJ</a>	—	<a href="#">8B-S012-HCH</a>	<a href="#">8B-S012-JCH</a>
Florisil®	—	—	—	—	<a href="#">8B-S013-HBJ</a>	—	<a href="#">8B-S013-HCH</a>	<a href="#">8B-S013-JCH</a>
EPH	—	—	—	—	<a href="#">8B-S031-HBJ</a>	—	—	—
AL-N	—	—	—	—	<a href="#">8B-S313-HBJ</a>	—	—	<a href="#">8B-S313-JCH</a>
PFAS	—	—	—	—	—	<a href="#">CS0-9207</a>	<a href="#">CS0-9208</a>	—
GCB	—	—	—	—	—	<a href="#">8B-S528-FCH</a>	<a href="#">8B-S528-HCH</a>	—

### Mixed-mode sorbents (for drugs of abuse)

Tubes	1 mL (100/box)		3 mL (50/box)			6 mL (30/box)		
	—	100 mg	100 mg	150 mg	200 mg	200 mg	500 mg	—
Screen-C	—	<a href="#">8B-S016-EAK</a>	<a href="#">8B-S016-EBJ</a>	<a href="#">8B-S016-SBJ</a>	<a href="#">8B-S016-FBJ</a>	<a href="#">8B-S016-FCH</a>	<a href="#">8B-S016-HCH</a>	—
Screen-A	—	<a href="#">8B-S019-EAK</a>	—	—	<a href="#">8B-S019-FBJ</a>	<a href="#">8B-S019-FCH</a>	<a href="#">8B-S019-HCH</a>	—

### Polymeric sorbents

Tubes	1 mL (100/box)		3 mL (50/box)			6 mL (30/box)		
	50 mg	100 mg	—	200 mg	500 mg	200 mg	500 mg	1 g
SDB-L	<a href="#">8B-S014-DAK</a>	<a href="#">8B-S014-EAK</a>	—	<a href="#">8B-S014-FBJ</a>	<a href="#">8B-S014-HBJ</a>	<a href="#">8B-S014-FCH</a>	<a href="#">8B-S014-HCH</a>	<a href="#">8B-S014-JCH</a>

### Strata-X Polymer-Based Sorbents

Tubes	1 mL (100/box)		3 mL (50/box)			6 mL (30/box)		
	30 mg	60 mg	60 mg	200 mg	500 mg	100 mg	200 mg	500 mg
Strata-X	<a href="#">8B-S100-TAK</a>	<a href="#">8B-S100-UAK</a>	<a href="#">8B-S100-UBJ</a>	<a href="#">8B-S100-FBJ</a>	<a href="#">8B-S100-HBJ</a>	<a href="#">8B-S100-ECH</a>	<a href="#">8B-S100-FCH</a>	<a href="#">8B-S100-HCH</a>
Strata-X-C	<a href="#">8B-S029-TAK</a>	—	<a href="#">8B-S029-UBJ</a>	<a href="#">8B-S029-FBJ</a>	<a href="#">8B-S029-HBJ</a>	<a href="#">8B-S029-ECH</a>	<a href="#">8B-S029-FCH</a>	<a href="#">8B-S029-HCH</a>
Strata-X-CW	<a href="#">8B-S035-TAK</a>	—	<a href="#">8B-S035-UBJ</a>	<a href="#">8B-S035-FBJ</a>	<a href="#">8B-S035-HBJ</a>	<a href="#">8B-S035-ECH</a>	<a href="#">8B-S035-FCH</a>	<a href="#">8B-S035-HCH</a>
Strata-X-A	<a href="#">8B-S123-TAK</a>	—	<a href="#">8B-S123-UBJ</a>	<a href="#">8B-S123-FBJ</a>	<a href="#">8B-S123-HBJ</a>	<a href="#">8B-S123-ECH</a>	<a href="#">8B-S123-FCH</a>	<a href="#">8B-S123-HCH</a>
Strata-X-AW	<a href="#">8B-S038-TAK</a>	—	<a href="#">8B-S038-UBJ</a>	<a href="#">8B-S038-FBJ</a>	<a href="#">8B-S038-HBJ</a>	<a href="#">8B-S038-ECH</a>	<a href="#">8B-S038-FCH</a>	<a href="#">8B-S038-HCH</a>
Strata-XL	<a href="#">8B-S043-TAK</a>	—	<a href="#">8B-S043-UBJ</a>	<a href="#">8B-S043-FBJ</a>	<a href="#">8B-S043-HBJ</a>	<a href="#">8B-S043-ECH</a>	<a href="#">8B-S043-FCH</a>	<a href="#">8B-S043-HCH</a>
Strata-XL-C	<a href="#">8B-S044-TAK</a>	—	<a href="#">8B-S044-UBJ</a>	<a href="#">8B-S044-FBJ</a>	<a href="#">8B-S044-HBJ</a>	<a href="#">8B-S044-ECH</a>	<a href="#">8B-S044-FCH</a>	<a href="#">8B-S044-HCH</a>
Strata-XL-CW	<a href="#">8B-S052-TAK</a>	—	<a href="#">8B-S052-UBJ</a>	<a href="#">8B-S052-FBJ</a>	<a href="#">8B-S052-HBJ</a>	<a href="#">8B-S052-ECH</a>	<a href="#">8B-S052-FCH</a>	<a href="#">8B-S052-HCH</a>
Strata-XL-A	<a href="#">8B-S053-TAK</a>	—	<a href="#">8B-S053-UBJ</a>	<a href="#">8B-S053-FBJ</a>	<a href="#">8B-S053-HBJ</a>	<a href="#">8B-S053-ECH</a>	<a href="#">8B-S053-FCH</a>	<a href="#">8B-S053-HCH</a>
Strata-XL-AW	<a href="#">8B-S051-TAK</a>	—	<a href="#">8B-S051-UBJ</a>	<a href="#">8B-S051-FBJ</a>	<a href="#">8B-S051-HBJ</a>	<a href="#">8B-S051-ECH</a>	<a href="#">8B-S051-FCH</a>	<a href="#">8B-S051-HCH</a>

### Accessories For Tubes

Adapter Caps		
Part No.	Description	Unit
<a href="#">AH0-7191</a>	Adapter Caps for 1, 3, and 6 mL SPE tubes, polyethylene, with Luer tip	15/pk

### On-line SPE

On-line Extraction Cartridges	Dimensions	Part No.
Strata C18	20 x 2.0 mm	<a href="#">00M-S039-B0-CB</a>
Strata C8	20 x 2.0 mm	<a href="#">00M-S101-B0-CB</a>
Strata-X	20 x 2.0 mm	<a href="#">00M-S033-B0-CB</a>
Strata-X-A	20 x 2.0 mm	<a href="#">00M-S132-B0-CB</a>
Strata-X-AW	20 x 2.0 mm	<a href="#">00M-S038-B0-CB</a>
Strata-X-C	20 x 2.0 mm	<a href="#">00M-S048-B0-CB</a>
Strata-X-CW	20 x 2.0 mm	<a href="#">00M-S036-B0-CB</a>
Cartridge Holder	20 mm	<a href="#">CHO-5845</a>



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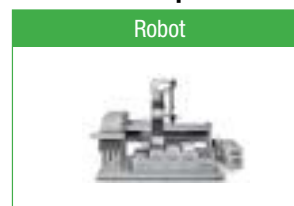
# 96-Well Plate Ordering Information

## SPE 96-Well Plates

### Process Samples with a Vacuum Manifold



### Process Samples with a Robot



## Strata-X Polymer-Based Sorbents

96-Well Plates (2/Box)			
Phase	10 mg	30 mg	60 mg
Strata-X-AW	<a href="#">8E-S038-AGB</a>	<a href="#">8E-S038-TGB</a>	<a href="#">8E-S038-UGB</a>
Strata-X-A	<a href="#">8E-S123-AGB</a>	<a href="#">8E-S123-TGB</a>	<a href="#">8E-S123-UGB</a>
Strata-X	<a href="#">8E-S100-AGB</a>	<a href="#">8E-S100-TGB</a>	<a href="#">8E-S100-UGB</a>
Strata-X-C	<a href="#">8E-S029-AGB</a>	<a href="#">8E-S029-TGB</a>	<a href="#">8E-S029-UGB</a>
Strata-X-CW	<a href="#">8E-S035-AGB</a>	<a href="#">8E-S035-TGB</a>	<a href="#">8E-S035-UGB</a>
Strata-XL-AW	—	<a href="#">8E-S051-TGB</a>	—
Strata-XL-A	—	<a href="#">8E-S053-TGB</a>	—
Strata-XL	—	<a href="#">8E-S043-TGB</a>	—
Strata-XL-C	—	<a href="#">8E-S044-TGB</a>	—
Strata-XL-CW	—	<a href="#">8E-S052-TGB</a>	—

## Strata-X Microelution Plates

96-Well Plates (ea)	
Phase	2 mg
Strata-X-AW	<a href="#">8M-S038-4GA</a>
Strata-X-A	<a href="#">8M-S123-4GA</a>
Strata-X	<a href="#">8M-S100-4GA</a>
Strata-X-C	<a href="#">8M-S029-4GA</a>
Strata-X-CW	<a href="#">8M-S035-4GA</a>

## Round Well Collection Plates (polypropylene)

Part No.	Well Bottom	Well Volume	Unit	Suggested Sealing Mats
<a href="#">AH0-7279</a>	Round	1 mL	50/pk	<a href="#">AH0-8631</a> <a href="#">AH0-8632</a>
<a href="#">AH0-8636</a>	Round	2 mL	50/pk	<a href="#">AH0-8633</a> <a href="#">AH0-8634</a>

## Collection Plates\*

Part No.	Description	Unit
<a href="#">AH0-7192</a>	350 µL/well 96-Square Well Conical V-bottom Collection Plate	50/pk
<a href="#">AH0-7193</a>	1 mL/well 96-Square Well Conical V-bottom Collection Plate	50/pk
<a href="#">AH1-7025</a>	1 mL/well 96-Round Well Round Bottom 7 mm Collection Plate	50/pk
<a href="#">AH0-7194</a>	2 mL/well 96-Square Well Conical V-bottom Collection Plate	50/pk
<a href="#">AH0-8636</a>	2 mL/well 96-Round Well Round Bottom 8 mm Collection Plate	50/pk
<a href="#">AH0-9332</a>	1.2 mL/well 96-Round Well Round Bottom Collection Plate	50/pk
<a href="#">AH0-9333</a>	0.5 mL/well 96-Round Well V-Bottom, 7 mm Collection Plate, Sterile	50/pk
<a href="#">AH0-9341</a>	0.5 mL/well 96-Round Well Conical Bottom 7 mm Collection Plate	50/pk
<a href="#">AH1-7036</a>	2 mL/well Low-Bind 96-Round Well Conical Bottom (deep well, polypropylene, glass lined) Collection Plate	120/pk

## Strata Silica-Based Sorbents

96-Well Plates (2/Box)			
Phase	25 mg	50 mg	100 mg
C18-E	<a href="#">8E-S001-CGB</a>	<a href="#">8E-S001-DGB</a>	<a href="#">8E-S001-EGB</a>
C18-U	—	<a href="#">8E-S002-DGB</a>	<a href="#">8E-S002-EGB</a>
C18-T	<a href="#">8E-S004-CGB</a>	<a href="#">8E-S004-DGB</a>	—
C8	<a href="#">8E-S005-CGB</a>	—	—
Phenyl	<a href="#">8E-S006-CGB</a>	—	<a href="#">8E-S006-EGB</a>
Silica	—	<a href="#">8E-S012-DGB</a>	<a href="#">8E-S012-EGB</a>
NH <sub>2</sub>	<a href="#">8E-S009-CGB</a>	<a href="#">8E-S009-DGB</a>	<a href="#">8E-S009-EGB</a>
SAX	<a href="#">8E-S008-CGB</a>	<a href="#">8E-S008-DGB</a>	<a href="#">8E-S008-EGB</a>
SCX	<a href="#">8E-S010-CGB</a>	<a href="#">8E-S010-DGB</a>	<a href="#">8E-S010-EGB</a>
WCX	<a href="#">8E-S027-CGB</a>	<a href="#">8E-S027-DGB</a>	—
Screen-C	—	<a href="#">8E-S016-DGB</a>	<a href="#">8E-S016-EGB</a>
SDB-L	—	<a href="#">8E-S014-DGB</a>	—

## Round Well Sealing Mats

Part No.	Description	Material	Unit
<a href="#">AH0-8631</a>	Pierceable, 7 mm diameter	Silicone	50/pk
<a href="#">AH0-8632</a>	Pre-Slit, 7 mm diameter	Silicone	50/pk
<a href="#">AH0-8633</a>	Pierceable, 8 mm diameter	Silicone	50/pk
<a href="#">AH0-8634</a>	Pre-Slit, 8 mm diameter	Silicone	50/pk
<a href="#">AH0-7362</a>	Sealing Tap Pad	—	10/pk

## Square Well Sealing Mats

Part No.	Description	Material	Unit
<a href="#">AH0-8597</a>	Pierceable	Silicone	50/pk
<a href="#">AH0-8598</a>	Pre-Slit	Silicone	50/pk
<a href="#">AH0-8199</a>	Pierceable	Santoprene™	100/pk
<a href="#">AH0-7195</a>	Pierceable	Ethylene Vinyl Acetate (EVA)	50/pk
<a href="#">AH0-7362</a>	Sealing Tap Pad	—	10/pk

## Strata Activated Carbon

Part No.	Description	Unit
<a href="#">CS0-9209</a>	2g/6mL	30/pk
<a href="#">CS0-9210</a>	400mg/Pass Through cartridge	50/pk

## Strata GCB

Part No.	Description	Unit
<a href="#">8B-S528-CAJ</a>	25mg/1mL Pass Through Cartridge	50/pk
<a href="#">8B-S528-FCH</a>	250mg/6mL	30/pk
<a href="#">8B-S528-HCH</a>	500mg/6mL	30/pk

## Strata PFAS SPE (WAX/GCB)

Part No.	Description	Unit
<a href="#">CS0-9207</a>	200mg/50mg/6mL	30/pk
<a href="#">CS0-9208</a>	500mg/50mg/6mL	200/pk
<a href="#">CS0-9208-S</a>	500mg/50mg/6mL	30/pk



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# SPE Clean-up for Biologics



Biological samples are complex sample matrices that require comprehensive sample preparation before analysis. SPE is offered in a variety of different formats for glycan clean-up, oligonucleotides, and can be used for a simple desalting technique.

## Biozen N-Glycan Clean-Up Solid Phase Extraction



Solid phase extraction (SPE) HILIC stationary phase that excels at retention and recovery labeled released N-glycans! Microelution format allows for streamlined processing and clean-up of small sample volumes.

### Biozen N-Glycan Clean-Up

bioZen Solid Phase Extraction	Format	Sorbent Mass	Part Number	Unit	Price
Biozen N-Glycan Clean-Up	Microelution 96-Well Plate	5 mg/well	<a href="#">8M-S009-NGA</a>	1/box	\$ 310

## Clarity™ Rapid Isolation of Oligo Therapeutics from Biological Samples

- > 80 % typical extraction recoveries
- No liquid-liquid extraction (LLE) required
- Suitable for a majority of therapeutic oligos, tissues, and fluids
- Optimized for LC-MS bioanalysis
- Can be automated for high-throughput



	Clarity QSP™	Clarity Oligo-RP™ Clarity Oligo-XT	Clarity Oligo-SAX	Clarity RP-Desalting™
Primary Use	High-throughput, trityl-on RPC purification	RP-HPLC purification of failure sequences from target sequences	Economical, high loading capacity IEX-LC prep-scale purification	Quick removal of salt & excess reagent
Purities	>90%	>90%	>90%	>70%
Recoveries	~90%	~70%	~90%	~70%
Synthesis Scale Load	Up to 50 µmol	Up to 50 µmol	Up to 50 µmol	Up to 1 µmol
Oligo Types	DNA, RNA/RNAi, Thioates, Dye-labeled, Modified			

### Characterization / Analysis

	Clarity Oligo-RP™	Clarity Oligo-MS™ Clarity Oligo-XT	Clarity Oligo-OTX™
Primary Use	RP-LC-MS analysis with optimized selectivity and sensitivity	Rapid, high efficiency RP-LC-MS analysis for QC and characterization	Extraction of oligo therapeutics from biological samples for LC-MS bioanalysis
Oligo Length	≤ 60 mer	≤ 60 mer	≤ 40 mer
Recommended Mobile Phase	TEA / HFIP	TEA/HFIP/MeOH	N/A

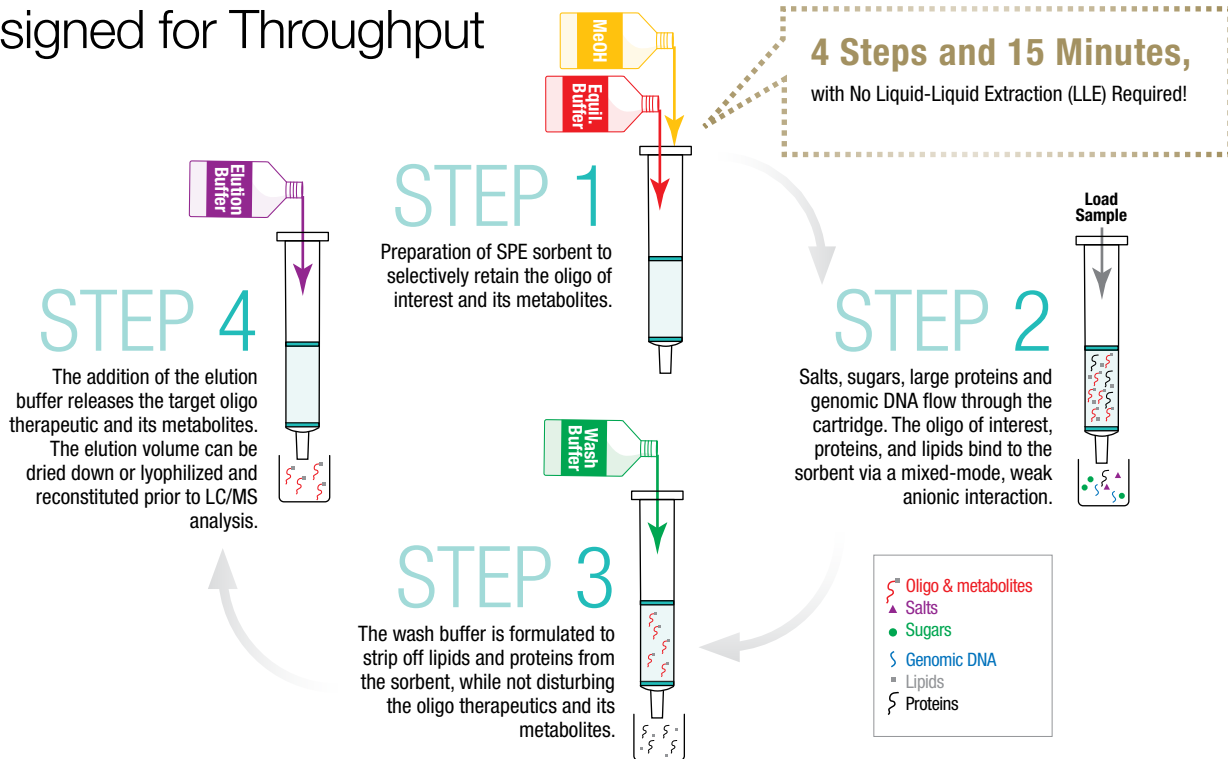
### Upgrade your LC

Try Biozen Oligo LC Columns for High Performance, pH 1-12 Stable Core-Shell Particle Packaged in a Bio-Inert Hardware.

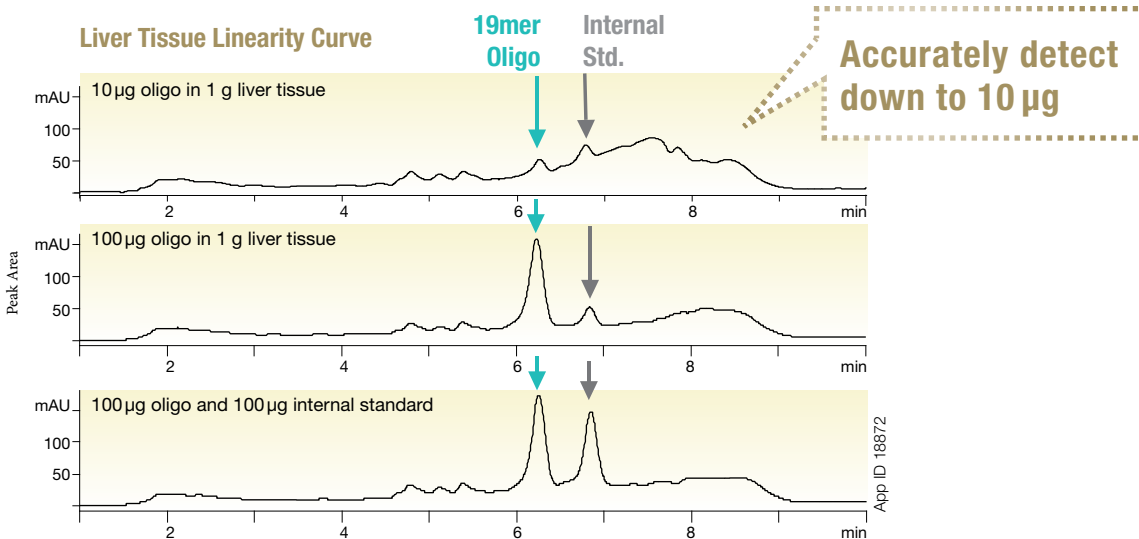
[www.phenomenex.com/biozen](http://www.phenomenex.com/biozen)



# Designed for Throughput



## Detect Low Dosage Levels



# Ordering Information

Choose from 96-well plates or cartridges and stock up on 1L quantities of buffers.

Part No.	Description		Unit
<a href="#">KS0-8494</a>	Clarity™ OTX™ Starter Kit- Tubes	Includes: 100 mg/3 mL cartridges (x50) Lysis-loading buffer (100 mL) Equilibration buffer (250 mL) Wash buffer (350 mL) Elution buffer (100 mL)	ea
<a href="#">KS0-9253</a>	Clarity OTX Starter Kit- 96-Well Plate	100 mg/ 96-well plate (x1) Lysis-loading buffer (100 mL) Equilibration buffer (250 mL) Wash buffer (350 mL) Elution buffer (100 mL)	ea
<a href="#">8M-S103-4GA</a>	Clarity OTX Microelution Well Plate	2 mg/ well	1/box
<a href="#">8E-S103-CGA</a>	Clarity OTX Well Plate	25 mg/ well	1/box
<a href="#">8E-S103-EGA</a>	Clarity OTX Well Plate	100 mg/ well	1/box
<a href="#">8B-S103-EBJ</a>	Clarity OTX Cartridge	100 mg/3 mL	50/box
<a href="#">8B-S103-HCH</a>	Clarity OTX Cartridge	500 mg/6 mL	30/box
<a href="#">AL0-8579</a>	Clarity OTX Lysis-Loading Buffer V2.0	1 L	ea



# DMT On (Trityl On)

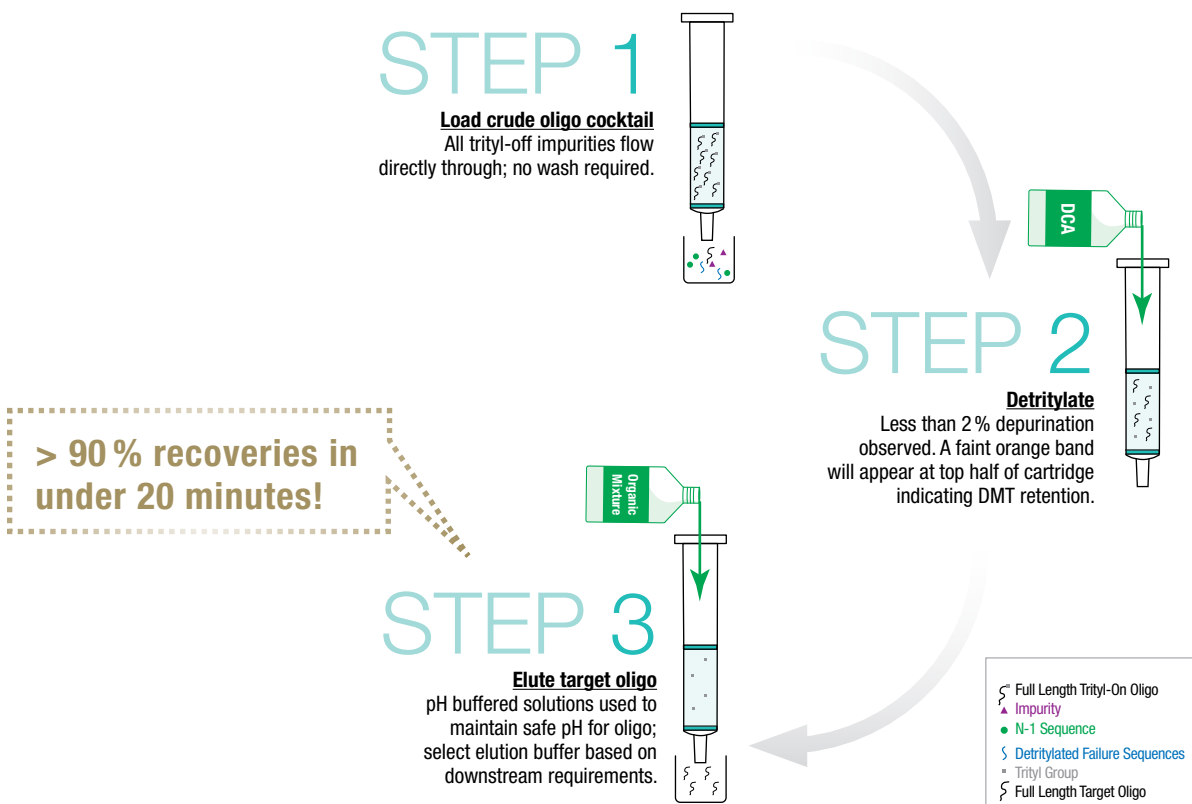
## Clarity QSP

The DNA and RNA synthesis process results in a solution that contains target oligos as well as impurities and failure sequences. Target oligos must then be isolated and purified for further analysis. Using a Quick, Simple, and Pure (QSP) protocol, Clarity QSP produces greater than 90% recoveries of target oligos in less than 20 minutes.

## It's Quick, Simple, and Pure (QSP)

### Pre-treatment

Trityl-on oligo sample preparation. Mix equal volume of loading buffer with cleavage/deprotection solution



## Ordering Information

Part No.	Description		Unit
<b>Formats</b>			
<a href="#">8E-S102-DGB</a>	Clarity QSP Well Plate	50 mg/well	1/box
<a href="#">8B-S102-UBJ</a>	Clarity QSP Cartridge	60 mg/3 mL	50/box
<a href="#">8B-S102-SBJ</a>	Clarity QSP Cartridge	150 mg/3 mL	50/box
<a href="#">8B-S042-LFF</a>	Clarity QSP Cartridge	5 g/60 mL	16/box
<b>Buffers*</b>			
<a href="#">AL0-8280</a>	Clarity QSP DNA Loading Buffer	1 L	ea
<a href="#">AL0-8282</a>	Clarity QSP RNA-TBDMS Loading Buffer	1 L	ea

\* RNA-TOM loading buffer available upon request

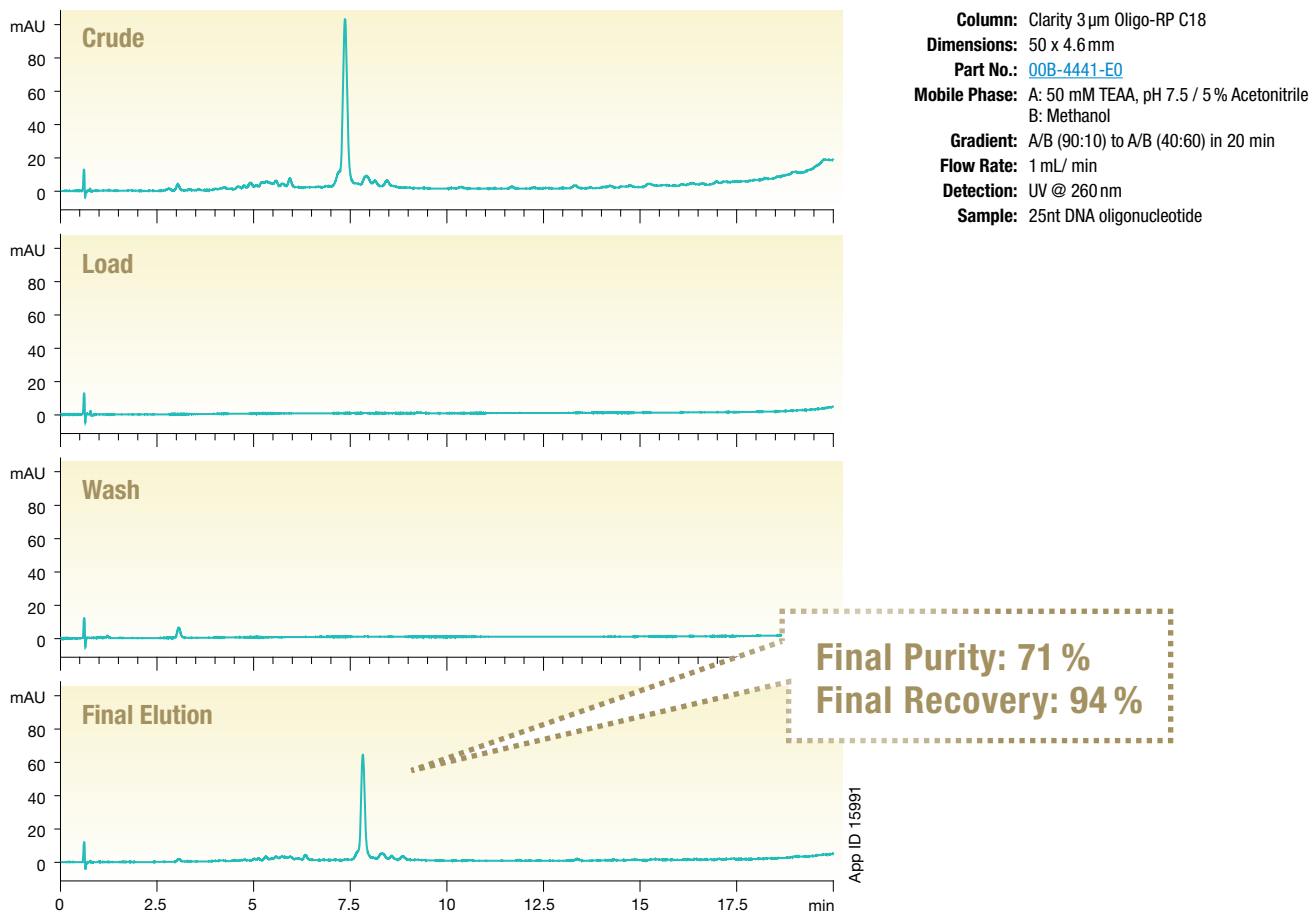


# DMT Off (Trityl off)

## Clarity RP-Desalting™

Trityl-off synthetic oligo synthesis mixtures must undergo a desalting process to remove salts and buffers that are not amenable to LC/MS analysis. Clarity RP-Desalting tubes and 96-well plates provide a high capacity, fast and effective desalting solution that results in greater than 70% purity and 80% recovery of trityl-off synthetic oligos.

## Desalting of Dye-Labeled DNA



A quencher-labeled sample of DNA (25nt) with the sequence FAMTTGACTTAGACTTAGA-CTTAGTTT was desalted using Clarity RP-Desalting tubes in the 200 mg/3 mL format. Collection fractions were then analyzed for purity and recovery using the above protocol.

## Ordering Information

Tubes	200 mg/3 mL*	500 mg/3 mL**	96-Well Plates*		
Phase	50/box	50/box	Part No.	Description	Unit
Clarity RP Desalting	<a href="#">8B-S041-FBJ</a>	<a href="#">8B-S041-HBJ</a>	<a href="#">8E-S041-SGA</a>	Clarity RP Desalting 150 mg/well	ea

\* For 200 µmole synthesis

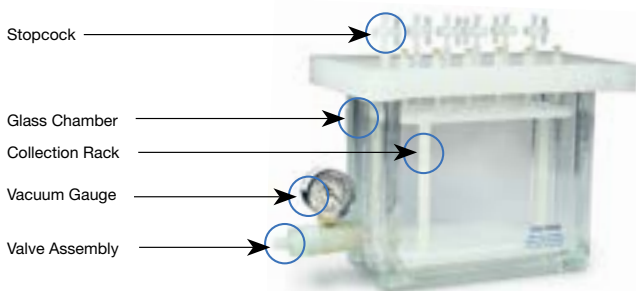
\*\* For 1 µmole synthesis

# Sample Processing

## Instantly Increase Throughput Without Investing in Expensive Capital Equipment

### SPE Tube Vacuum Manifold

- Process up to 12 or 24 samples at one time
- Process up to 10 large volume samples at one time
- Female Luer inlets fit all male Luer tipped SPE tubes and cartridges



### 96-Well Plate Vacuum Manifold

- Includes vacuum valve attachment and two collection plate spacer inserts
- Made of durable acrylic
- Designed to accommodate 96-well plates, collection plates, protein precipitation plates, and filtration plates



## Ordering Information

Part No.	Description	Unit
<b>24 – Position Vacuum Manifold*<sup>3</sup></b>		
VM24	SPE 24-Position Vacuum Manifold Set, complete assembly	ea
<b>24 – Position Vacuum Manifold Replacement Parts</b>		
A82404	SPE Gasket	ea
VM24-J	SPE Collection Rack	ea
VM24-W	SPE 24-Position Vacuum Waste Container, polypropylene	ea
A81213	SPE Luer Stopcocks	12/pk
<b>12 - Position Vacuum Manifold*<sup>2</sup></b>		
VM12	SPE 12-Position Vacuum Manifold Set, complete assembly	ea
<b>12 – Position Vacuum Manifold Replacement Parts</b>		
A80106	SPE Gasket	ea
A81216	SPE Collection Rack Assembly, including plates, legs and clips <sup>2</sup>	ea
A81215	SPE 12-Position Vacuum Waste Container, polypropylene	ea
A81213	SPE Luer Stopcocks	12/pk

\* Manifolds include: Vacuum-tight glass chamber, vacuum gauge assembly, polypropylene lid with gasket, male and female luers and yellow end plugs, stopcock valves, collection rack assemblies, polypropylene needles, lid support legs. Waste container included with 12-position manifold.

(1) The 10-position Tall Boy Vacuum Manifold Collection Rack includes 4 plates: one base plate, one dimple plate, one small plate and one large plate and three riser bar legs, along with 12 manifold clips to support the plates. The assembly also includes 10 polypropylene needles, 10 stopcocks and 4 black legs to support the lid when taken off the glass block.

(2) The 12-position Collection Rack Assembly consists of 3 support legs, base plate, dimple plate, small plate, medium plate, large plate, volumetric plate, and 12 retaining clips.

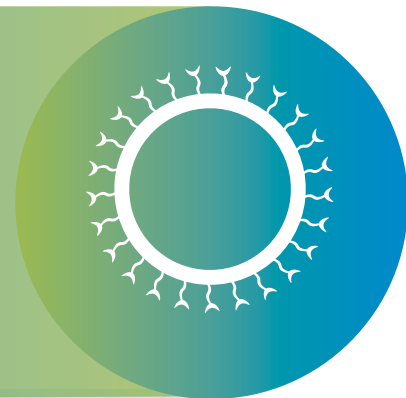
(3) The 24-position Collection Rack Assembly consists of 3 support legs, base plate, dimple plate, small plate, large plate, and 12 retaining clips.

Part No.	Description	Unit
<b>96-Well Plate Manifold**</b>		
AHO-8950	96-Well Plate Manifold, Universal w/vacuum gauge	ea
<b>Replacement Parts</b>		
Part No.	Description	Unit
AHO-7285	96-Well Plate Manifold Replacement Gasket, Flat (to fit between acrylic chamber and 96-well plate), black	ea
AHO-7198	96-Well Plate Manifold Replacement Gasket, Profile, (to fit between acrylic chamber and manifold base), white	ea
AHO-8637	Reservoir, Single Well, High Profile, 96 Bottom Troughs	25/pk

\*\*Manifold, compatible with 2 mL Impact plate, Strata and Strata-X 96-well plate formats.

Part No.	Description	Unit
<b>General Vacuum Manifold Accessories</b>		
A80215	Adapter Caps for 1, 3 and 6 mL SPE tubes, polyethylene, with Luer tip	12/pk
A80100	SPE Manifold Needles, polypropylene	12/pk
A80102	SPE Manifold Needles, stainless steel	12/pk
A80104	Female Luer Fittings	1/pk
A80105	Male Luer Fittings	1/pk
A01003	Vacuum Gauge and Valve Assembly	ea
A80111	Retaining Clips	12/pk
A80117	Plugs/Dust Caps	12/pk
A81213	Stopcocks	12/pk

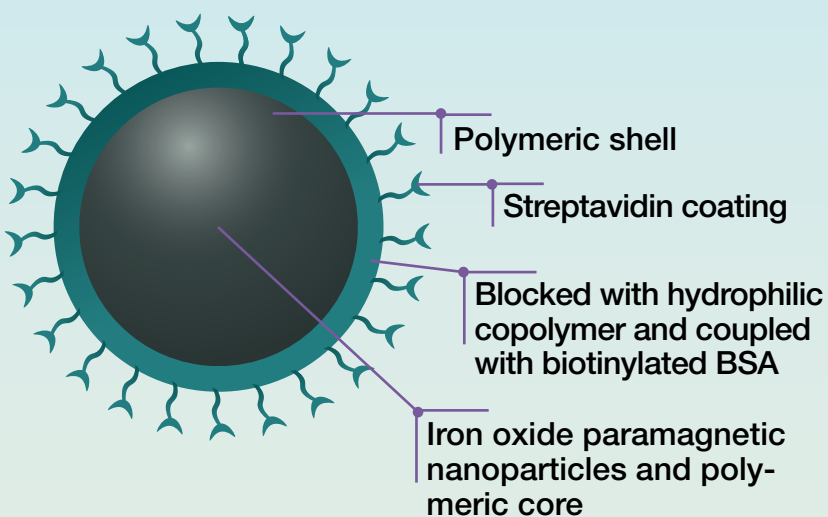
# Immunocapture



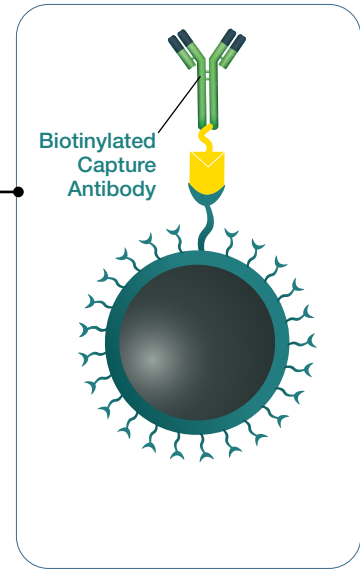
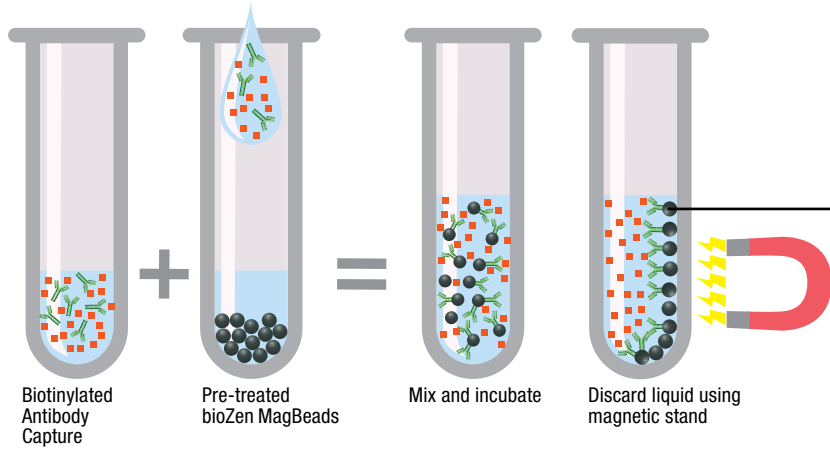
## Uniform magnetic bead particles for isolating and cleaning up proteins and peptides.

- Non-saturated, accurate binding surface orientation
- Blocked with copolymer and hydrophilic coupled with biotinylated BSA which:
  - Properly orients capture antibody
  - Prevents surface crowding and ligand inactivation through non-specific binding
  - Enhances dispersion of particles
  - Improves binding efficiency

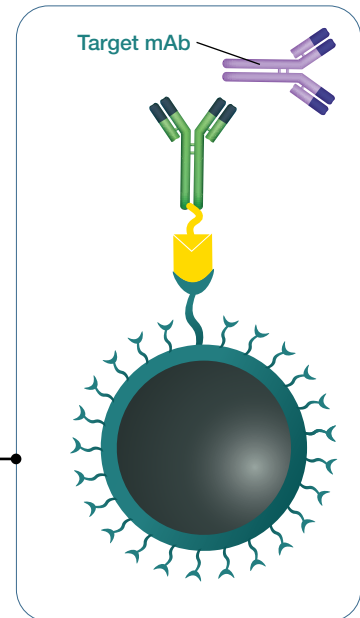
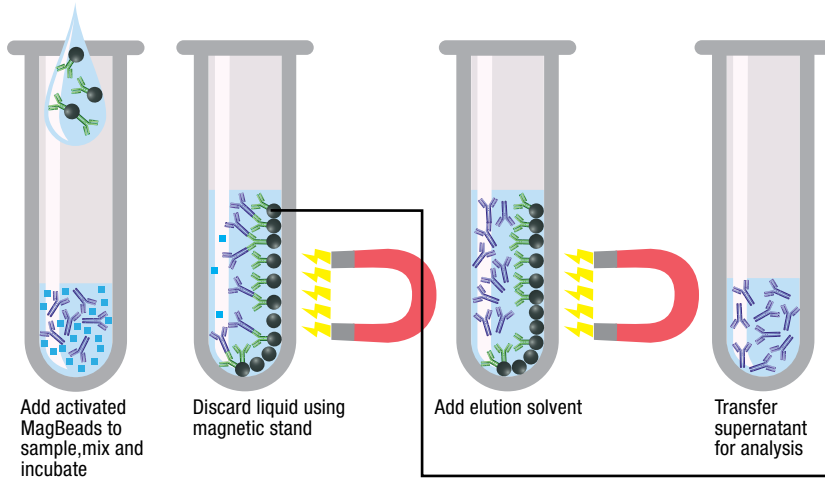
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## MagBead Activation



## Immunocapture

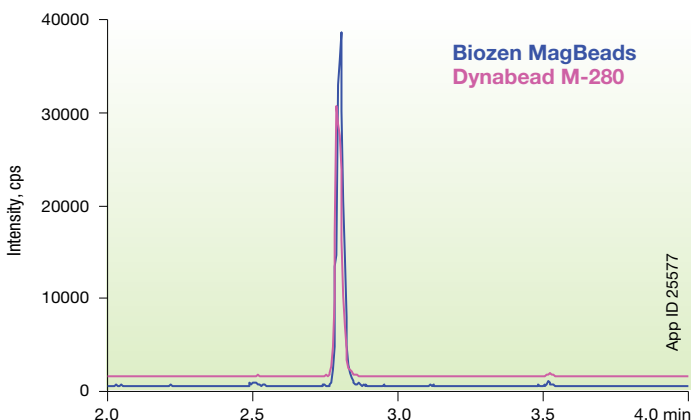


## MagBead Specifications

<b>Bead Type:</b>	Iron coated
<b>Bead Diameter:</b>	1 µm
<b>Outside Coating Type:</b>	Streptavidin
<b>Biotin Binding Capacity :</b>	> 200 pmol Biotin/mg
<b>Coating Specification:</b>	Tosyl-Activated, blocked with hydrophilic copolymer
<b>Concentration:</b>	20 mg/mL
<b>Available Formats:</b>	25 mg, 50 mg, 500 mg

Learn how to use Biozen MagBeads  
at [www.phenomenex.com/BiozenSP](http://www.phenomenex.com/BiozenSP)

## Comparison of Dynabeads M-280 vs. Biozen MagBeads



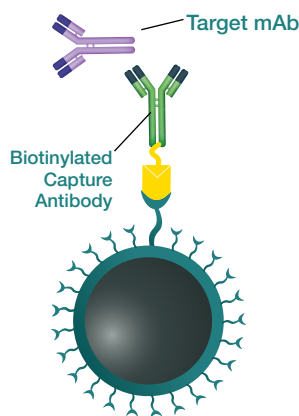
Biozen MagBeads offer **improved recovery** and **provides greater accuracy** for the peptide quantitation.

**Column:** Biozen 3µm Peptide PS-C18  
**Dimension:** 50 x 2.1 mm  
**Part No.:** [00B-4771-AN](#)  
**Mobile Phase:** A: 0.1% Formic acid in Water  
 B: 0.1% Formic acid in Acetonitrile  
**Gradient:** 3-50% in 4.5 minutes  
**Flow Rate:** 0.3 mL/min  
**Temperature:** 40 °C  
**Detection:** SCIEX X500B Q-TOF  
**Sample:** Rituximab 1.5 µg/mL (ASGYTFTSYNMHWVK)

## Ordering Information

### Biozen MagBeads Streptavidin Coated

Formats	Part No.	Concentration	Bead Size
25 mg (≈50 samples)	<a href="#">KSO-9531</a>	20 mg/mL	1.0 µm
50 mg (≈100 samples)	<a href="#">KSO-9532</a>		
500 mg (≈1000 samples)	<a href="#">KSO-9533</a>		



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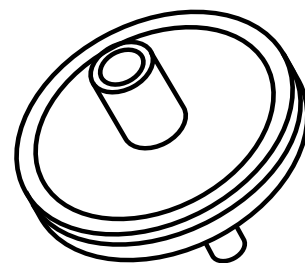
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Find a Biozen LC Column at  
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# Sample Preparation Tools and Resources



**Search Hundreds of  
Applications**

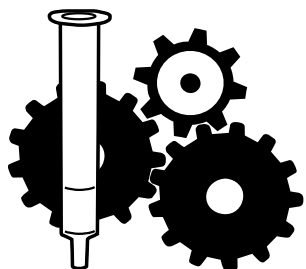


**Syringe Filter  
Finder Tool**

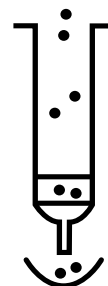


**Sample Preparation  
Support at Your Fingertips**

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**SPE Method  
Development Tool**



**Sample Preparation  
Basics Overview**

# SAMPLE PREPARATION

— MADE SIMPLE —

## Selection and Users Guide

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<b>Austria</b> t: +43 (0)1-319-1301 anfrage@phenomenex.com	<b>The Netherlands</b> t: +31 (0)30-2418700 nlinfo@phenomenex.com
<b>Belgium</b> t: +32 (0)2 503 4015 (French) t: +32 (0)2 511 8666 (Dutch) beinfo@phenomenex.com	<b>New Zealand</b> t: +64 (0)9-4780951 nzinfo@phenomenex.com
<b>Canada</b> t: +1 (800) 543-3681 info@phenomenex.com	<b>Norway</b> t: +47 810 02 005 nordicinfo@phenomenex.com
<b>China</b> t: +86 400-606-8099 cninfo@phenomenex.com	<b>Poland</b> t: +48 22 104 21 72 pl-info@phenomenex.com
<b>Czech Republic</b> t: +420 272 017 077 cz-info@phenomenex.com	<b>Portugal</b> t: +351 221 450 488 ptinfo@phenomenex.com
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<b>Finland</b> t: +358 (0)9 4789 0063 nordicinfo@phenomenex.com	<b>Slovakia</b> t: +420 272 017 077 sk-info@phenomenex.com
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<b>Japan</b> t: +81 (0) 120-149-262 jpinfo@phenomenex.com	<b>🌐 All other countries/regions Corporate Office USA</b> t: +1 (310) 212-0555 info@phenomenex.com
<b>Luxembourg</b> t: +31 (0)30-2418700 nlinfo@phenomenex.com	



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Strata-X is patented by Phenomenex. U.S. Patent No. 7,119,145

Clarity Oligo-XT is patented by Phenomenex. U.S. Patent No. 7,563,367 and 8,658,038 and foreign counterparts.

Clarity OTX and QSP are patented by Phenomenex. U.S. Patent No. 7,119,145.

Novum is patent pending.

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