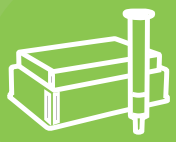
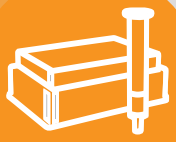
Immunocapture

β-Glucuronidase Removal

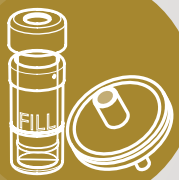


Supported Liquid Extraction



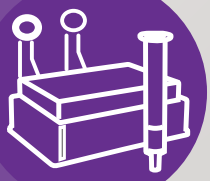
Solid Phase Extraction

Filtration



QuEChERS

Phospholipid Removal + Protein Precipitation



Protein Precipitation

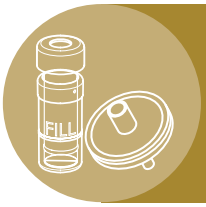
SAMPLE PREPARATION MADE SIMPLE

Selection and Users Guide

phenomenex™

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.



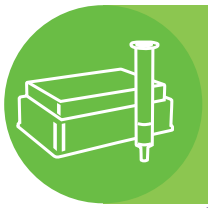
Filtration

VEREX™ Certified Filter Vials

PHENEX™ SYRINGE FILTERS

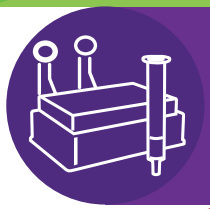
Protein Precipitation

Impact™ Rapid Protein Precipitation



β-Glucuronidase Removal

β-Gone™ β-Glucuronidase Removal Products

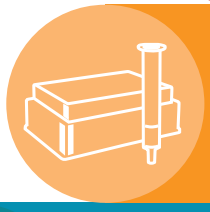


Phospholipid Removal + Protein Precipitation

Phree™ Phospholipid Removal Solutions

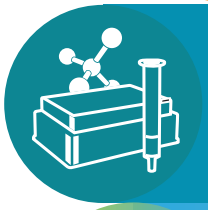
QuEChERS

roQ™ QuEChERS Kits



Supported Liquid Extraction

strata™ novum™ simplified liquid extraction



Solid Phase Extraction

strata™ Solid Phase Extraction

strata™-X Polymeric SPE

STRATA™-X-PRO A Rapid Solid Phase Extraction Solution

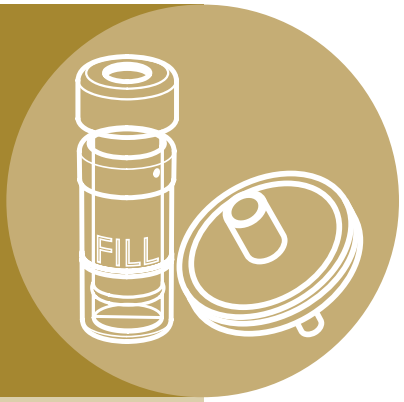
Immunocapture

biozen™ by Phenomenex

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.
www.phenomenex.com/behappy

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

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

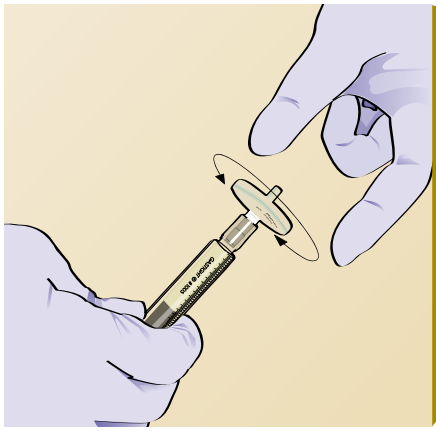
How to Use Syringe Filters

PHENEX™ SYRINGE FILTERS

Phenex Instructions

Loading

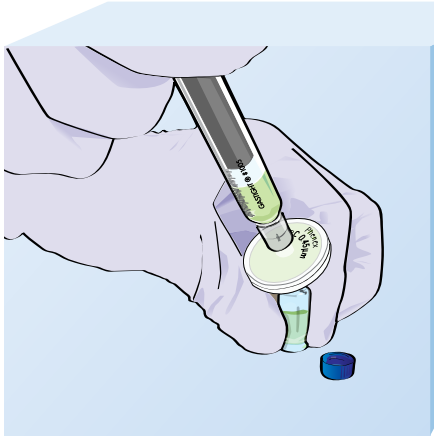
1. Fill a syringe barrel with the liquid sample. Allow a small amount of air (approximately 10 % of the sample volume) to enter the syringe. The air is used as a purge to minimize fluid retention when expelling the sample from the syringe (Step 3 below).



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

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?

≥ 3 µm	< 3 µm	OR
0.45 µm	0.20 µm	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 µm membrane

3. What type of sample are you working with?

Aqueous			Solvents	
Solvents Mixtures	Tissue Culture Media, Buffers	Protein Analysis/ Biological Samples	Non-Aqueous	Aqueous Mixtures
			Hydrophobic/ Strong Acids	Hydrophilic
RC (Regenerated Cellulose)	**CA** (Cellulose Acetate)	**PES** (Polyethersulfone)	**PTFE** (Polytetrafluoroethylene)	**RC** (Regenarated Cellulose)

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
• A broad range of aqueous and mixed-organic solutions • Fast-flow and ultra-low protein and non-specific binding characteristics • Broadly recommended as an excellent general purpose/high-performance sample filter for most applications	• Well-suited for the clarification of non-aqueous samples • Hydrophobic membrane, excellent for filtration of organic-based, highly acidic or basic samples and solvents • A hydrophobic membrane, that can be made hydrophilic by wetting with alcohol and then flushing with deionized water

Additional Syringe Filter Membranes

Membrane Types	Recommended Uses
PES (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.
NY (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.
CA (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.
GF (Glass Fiber)	Glass Fiber (GF) filters are made of inert borosilicate glass and have a nominal 1.2 µm 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.).
PVDF (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**

Recommendations Based on Your Industry

PHENEX™ SYRINGE FILTERS

Environmental

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

Recommended Filter: GF/NY

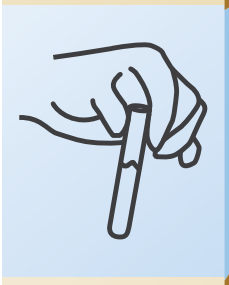
First Alternative: RC

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

Don't miss out on FREE samples!
Visit: **www.phenomenex.com/SyringeFilterFinder**

Ordering Information

PHENEX™ SYRINGE FILTERS

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
0.20 µm						
Phenex-RC (Regenerated Cellulose)	AF0-3203-12	100/pk	AF0-2203-12	100/pk	AF0-8203-12	100/pk
	AF0-3203-52	500/pk	AF0-2203-52	500/pk	AF0-8203-52	500/pk
Phenex-PES [2] (Polyethersulfone)	—	—	—	—	AF0-8208-12	100/pk
	—	—	—	—	AF0-8208-52	500/pk
Phenex-PTFE (Polytetrafluoroethylene)	AF0-3202-12	100/pk	AF0-2202-12	100/pk	AF0-1202-12	100/pk
	AF0-3202-52	500/pk	AF0-2202-52	500/pk	AF0-1202-52	500/pk
Phenex-NY (Nylon)	AF3-3207-12	100/pk	AF0-2207-12	100/pk	AF0-1207-12	100/pk
	AF3-3207-52	500/pk	AF0-2207-52	500/pk	AF0-1207-52	500/pk
Phenex-GF/NY [1] (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.				AF0-1A47-12	100/pk
					AF0-1A47-52	500/pk
Phenex-PVDF (Polyvinylidene Fluoride)	—	—	AF6-5206-12	100/pk	AF6-6206-12	100/pk
	—	—	AF6-5206-52	500/pk	AF6-6206-52	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 through-put, low extractables and broad chemical compatibility. This membrane binds less protein than nylon or PTFE membranes.				AF6-6C06-12	100/pk
					AF6-6C06-52	500/pk
Phenex-CA [3] (Cellulose Acetate)	—	—	—	—	AF0-8204-12	100/pk
	—	—	—	—	AF0-8204-52	500/pk
Phenex-GF/CA [1,2,3] (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.				AF0-8A09-12	100/pk
					AF0-8A09-52	500/pk
0.45 µm						
Phenex-RC (Regenerated Cellulose)	AF0-3103-12	100/pk	AF0-2103-12	100/pk	AF0-8103-12	100/pk
	AF0-3103-52	500/pk	AF0-2103-52	500/pk	AF0-8103-52	500/pk
Phenex-PES [2] (Polyethersulfone)	—	—	—	—	AF0-8108-12	100/pk
	—	—	—	—	AF0-8108-52	500/pk
Phenex-PTFE (Polytetrafluoroethylene)	AF0-3102-12	100/pk	AF0-2102-12	100/pk	AF0-1102-12	100/pk
	AF0-3102-52	500/pk	AF0-2102-52	500/pk	AF0-1102-52	500/pk
Phenex-NY (Nylon)	AF3-3107-12	100/pk	AF0-2107-12	100/pk	AF0-1107-12	100/pk
	AF3-3107-52	500/pk	AF0-2107-52	500/pk	AF0-1107-52	500/pk
Phenex-GF/NY [1] (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.				AF0-1B47-12	100/pk
					AF0-1B47-52	500/pk
Phenex-PVDF (Polyvinylidene Fluoride)	—	—	AF6-5106-12	100/pk	AF6-6106-12	100/pk
	—	—	AF6-5106-52	500/pk	AF6-6106-52	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 through-put, low extractables and broad chemical compatibility. This membrane binds less protein than nylon or PTFE membranes.				AF6-6D06-12	100/pk
					AF6-6D06-52	500/pk
Phenex-GF/CA [1,2,3] (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.				AF0-8B09-12	100/pk
					AF0-8B09-52	500/pk
1.20 µm						
Phenex-GF [1,2] (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.				AF0-8515-12	100/pk
					AF0-8515-52	500/pk

1. Glass fiber filters are 28 mm diameter and made of borosilicate. They will remove 90 % of all particles > 1.2 µm.
2. Housing material is methacrylate butadiene styrene (MBS) polymerisate. Also known as Cyrolite®.
3. 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.

Reduce 4 Products to 1: Verex Filter Vials

Verex Certified 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.

Reduce Sample Loss and Contamination

Eliminate multiple transfers with this all-in-one filtration device

Internal Plunger

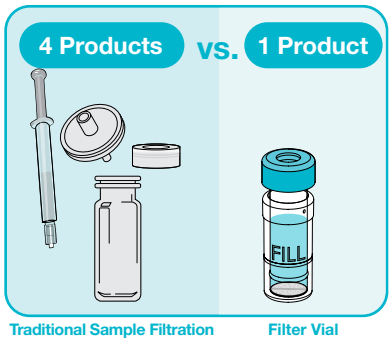
External Vial

Particulate-Free Sample

The filter membrane is attached to the internal plunger to ensure removal of particulates

Save Your Sample

With a low dead volume of 30 µL, more of your sample can be analyzed



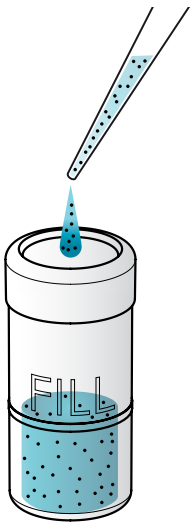
Verex Filter Vial Specifications

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

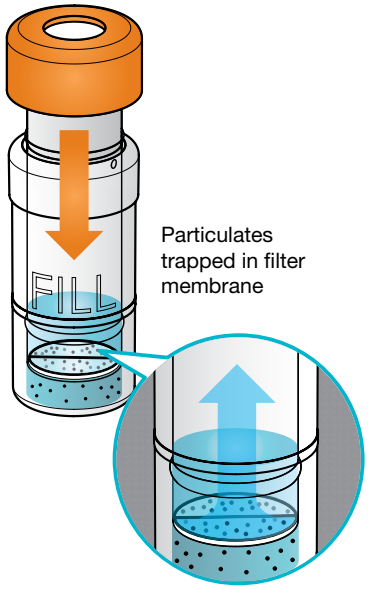
Verex Filter Vials are an easy two-step sample preparation device that consists of two parts: an external vial to be filled with sample and an internal plunger with a filtration membrane and cap with a pre-slit septa.

How to Use Filter Vials

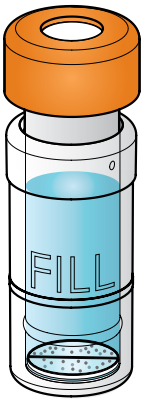
1 The sample is placed in the external vial using a pipette or syringe.



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

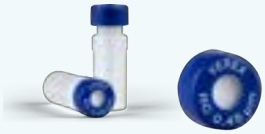
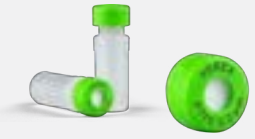


Now the Verex Filter Vial is ready to be placed into the autosampler!

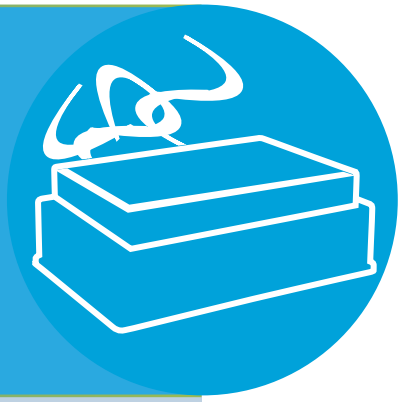


Simply dispense your sample and filter!

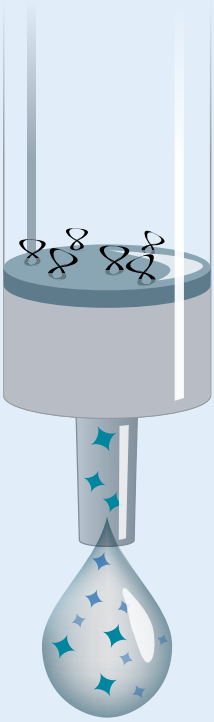
Ordering Information

Description		Pore Size	Part No.	Unit
Verex Filter Vial-RC (Regenerated Cellulose)		0.20 µm	AR0-F103-12	100/pk
		0.45 µm	AR0-F203-12	100/pk
Verex Filter Vial-PTFE (Polytetrafluoroethylene)		0.20 µm	AR0-F102-12	100/pk
		0.45 µm	AR0-F202-12	100/pk
Verex Filter Vial-NY (Nylon)		0.20 µm	AR0-F107-12	100/pk
		0.45 µm	AR0-F207-12	100/pk
Verex Filter Vial-PES (Polyethersulfone)		0.20 µm	AR0-F108-12	100/pk
		0.45 µm	AR0-F208-12	100/pk
Verex Filter Vial-PVDF (Polyvinylidene Fluoride)		0.20 µm	AR0-F106-12	100/pk
		0.45 µm	AR0-F206-12	100/pk

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

Rapid Protein Precipitation Without the Complications

Impact™
Rapid Protein Precipitation

Fast Analysis

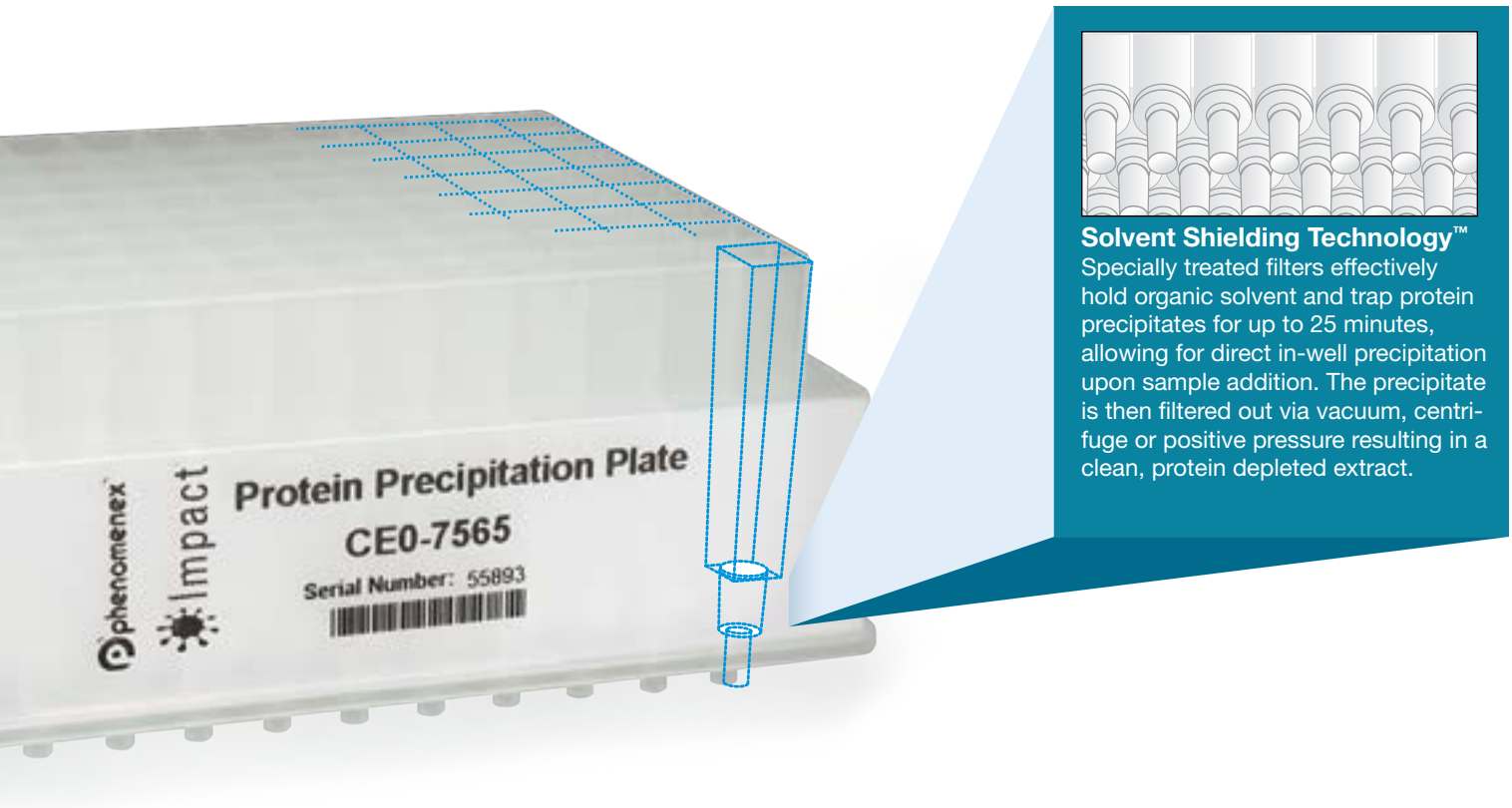
- Save time and increase efficiency by performing precipitation and filtration sequentially in the same plate
- Fast, easy to follow protocol; clean 96 samples in under 15 minutes
- Automatable process for higher productivity

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

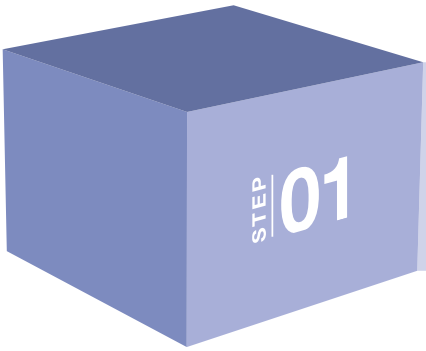


Solvent Shielding Technology™
Specially treated filters effectively hold organic solvent and trap protein precipitates for up to 25 minutes, allowing for direct in-well precipitation upon sample addition. The precipitate is then filtered out via vacuum, centrifuge or positive pressure resulting in a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

See How Impact Works
Visit: **www.phenomenex.com/impact**

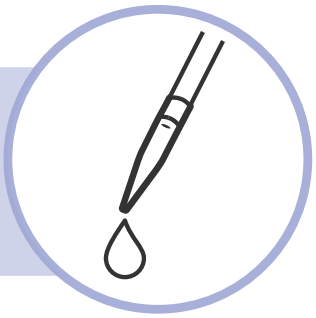
One Simple Method!

4 Quick Steps



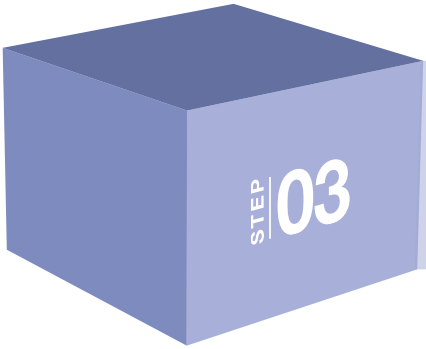
Dispense*

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.



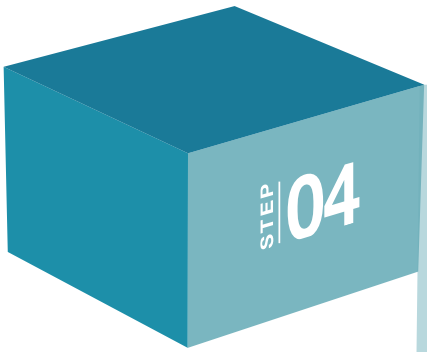
Add

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



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™



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.

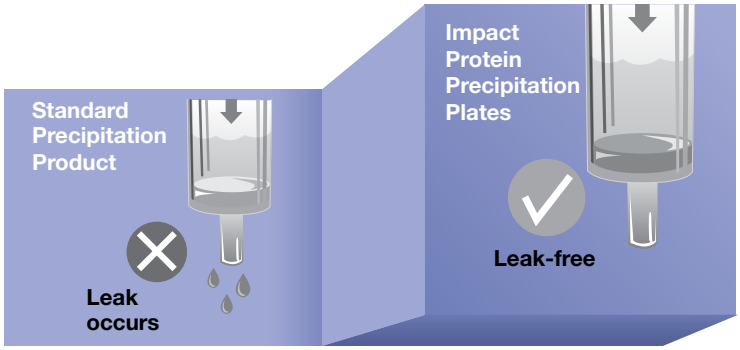
† When used with a liquid-handling instrument or automation, aspirate/dispense cycles may be used to promote in-tip mixing and precipitation. This will ensure complete precipitation and filtration. Vortexing is not necessary when in-tip precipitation is performed.

Designed to Eliminate the Problems of Conventional Filtration Products

Impact™ Rapid Protein Precipitation

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.

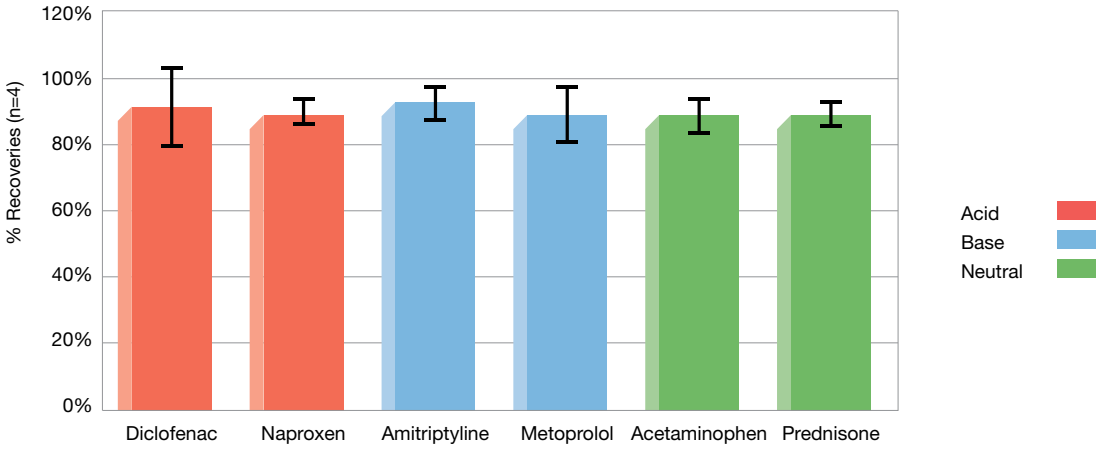


Solvent Shielding Technology™ prevents leaks

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.



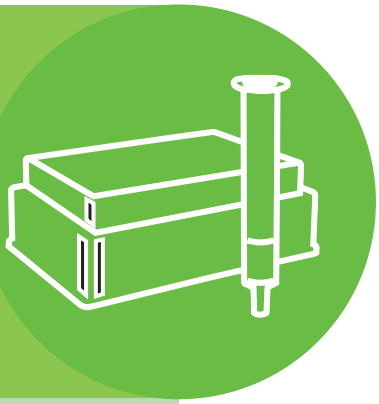
Ordering Information

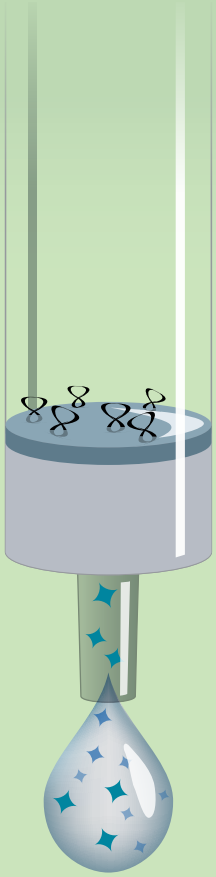
Part No.	Description	Unit
Impact Precipitation Products		
CE0-7565	Impact Protein Precipitation, Square Well, Filter Plate, 2 mL	2/pk
CE0-7566	Impact Protein Precipitation, Square Well, Long Drip, Filter Plate, 2 mL	2/pk
Impact Starter Kit for Protein Precipitation		
CE0-8201	Impact Protein Precipitation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

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.
www.phenomenex.com/behappy

β-Glucuronidase Removal





Urine that has been hydrolyzed using β-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 β-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

Now with In-Well Hydrolysis Capabilities!

Save time on transfer steps and reduce consumable costs with β-Gone Plus 96-Well Plates.

Clean-up Hydrolyzed Urine in Under 1 Minute

β-Gone™
β-Glucuronidase Removal Products

In two steps, ensure that your samples are free of β-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.

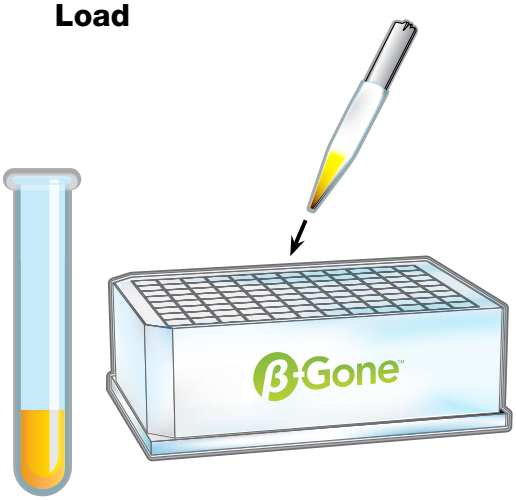
No Additional Time

- 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!

Step 1 **Load**
Load urine and hydrolysis solution in β-Gone Plus 96-well plate, incubate

β-Gone Plus Protocol

Step 2 **Collect**
Initiate vacuum and collect eluate



Skip The Transfer Step

Clean samples in under 1 minute!

Want to Learn More?
Visit: **www.phenomenex.com/betagone**

Don't Compromise Results

High Recoveries with Increased Sensitivity

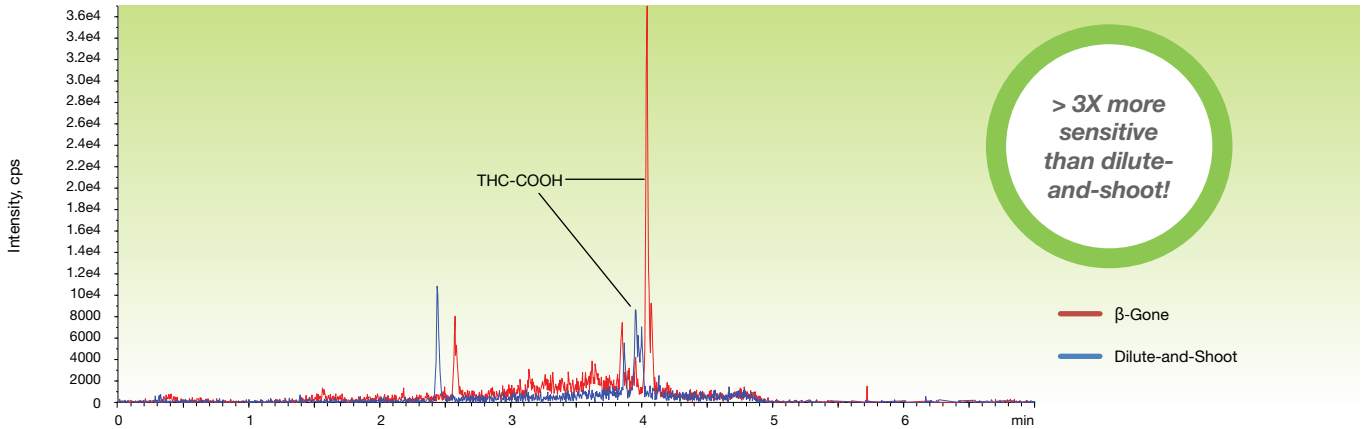
β-Gone™ β-Glucuronidase Removal Products

High Recoveries for a Panel of Drugs

	% Recovery	
Analyte	Non-Recombinant (natural) Enzyme	Recombinant Enzyme
6-MAM	89	109
7-Aminoclonazepam	87	76
alpha-Hydroxyalprazolam	96	93
Alprazolam	101	80
Amitriptyline	103	77
Amphetamine	99	92
Benzoylecgonine	99	110
Buprenorphine	104	91
Carisoprodol	95	75
Citalopram	106	95
Codeine	99	97
Cotinine	114	96
Diazepam	100	78
EDDP	106	84
Fentanyl	105	79
Fluoxetine	105	94
Gabapentin	97	88
Hydrocodone	104	93
Hydromorphone	99	95
Imipramine	107	90
Lorazepam	91	85
MDA	102	92
MDEA	106	89
MDMA	104	91
Meperidine	102	89
Meprobamate	93	73

	% Recovery	
Analyte	Non-Recombinant (natural) Enzyme	Recombinant Enzyme
Methadone	104	83
Methamphetamine	105	96
Methylphenidate	108	78
Morphine	100	84
Naloxone	93	109
Norbuprenorphine	110	89
Nordiazepam	85	85
Norfentanyl	109	79
Norhydrocodone	113	95
Noroxycodone	106	95
Nortriptyline	101	99
O-Desmethyltramadol	107	110
Oxazepam	90	84
Oxycodone	99	90
Oxymorphone	94	90
Paroxetine	102	90
PCP	102	65
Pregabalin	102	86
Ritalinic Acid	95	100
Tapentadol	106	85
Temazepam	93	97
THC-COOH	70	98
Tramadol	107	92
Zolpidem	106	81
Zolpidem4carboxy	96	88

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



App ID 23627

Column: Kinetex™ 2.6 µm 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.

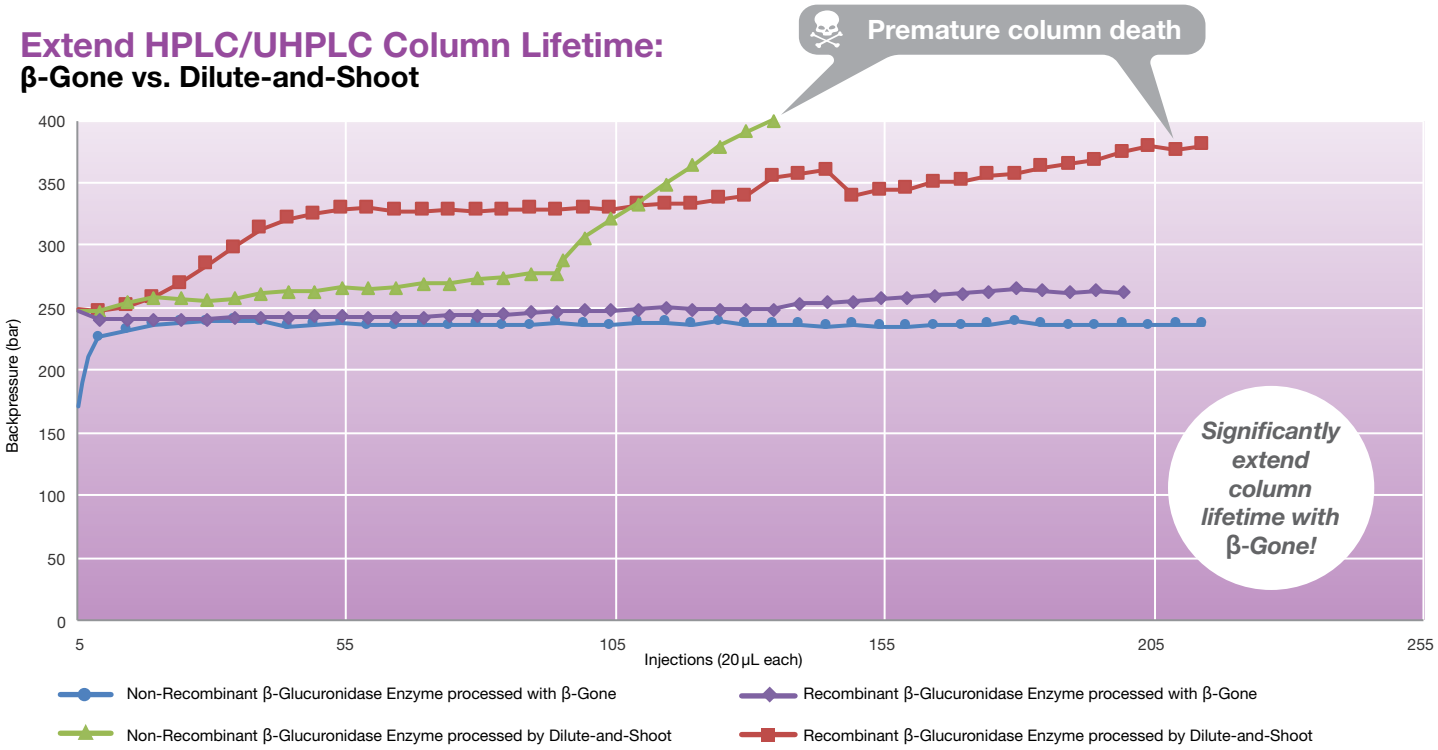
Dilute-and-Shoot Procedure: Dilute spiked urine (spiked at 100 ng/mL) 10-fold with 0.1 % Formic acid in Water.

Save Your LC Columns

Don't Ruin Your Column by Injecting Proteins

β-Gone™
β-Glucuronidase Removal Products

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



Ordering Information

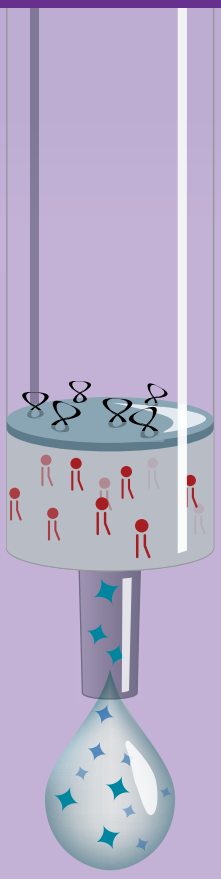
Part No.	Description	Unit
8B-S139-TAK	1mL Tubes, Recombinant Enzyme	100/Box
8B-S322-DAK	1mL Tubes, Non-Recombinant Enzyme	100/Box
8E-S139-TGA	96 Well-Plate, Recombinant Enzyme	1/Box
8E-S322-DGA	96 Well-Plate, Non-Recombinant Enzyme	1/Box
8N-S323-TUK	2mL Centrifuge Tubes, Recombinant and Non-Recombinant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

Accessories

Part No.	Description	Unit
Collection Plates (deep well, polypropylene)		
AH0-7192	96-Well Collection Plate 350 µL/well	50/pk
AH0-7193	96-Well Collection Plate 1 mL/well	50/pk
AH0-7194	96-Well Collection Plate 2 mL/well	50/pk
AH0-8635	96-Well Collection Plate, 2 mL Square/Round-Conical	50/pk
AH0-8636	96-Well Collection Plate, 2 mL Round/Round, 8 mm	50/pk
AH1-7025	96-Well Collection Plate, 1 mL/well Round, 7 mm	50/pk
AH0-9332	96-Well Collection Plate, 1.2 mL/well Round Well Round Bottom	50/pk
AH0-9333	96-Well Collection Plate, 0.5 mL/well V-Bottom, 7 mm Sterile	50/pk
AH0-9341	96-Well Collection Plate, 0.5 mL/well Conical Bottom 7 mm	50/pk
AH1-7036	96-Well Low-Bind Collection Plate, 2 mL/well Round Well Conical Bottom (glass lined)	120/pk
Sealing Mats		
AH0-8597	Sealing Mats, Pierceable, 96-Square Well, Silicone	50/pk
AH0-8598	Sealing Mats, Pre-Slit, 96-Square Well, Silicone	50/pk
AH0-8631	Sealing Mats, Pierceable, 96-Round Well 7 mm, Silicone	50/pk
AH0-8632	Sealing Mats, Pre-Slit, 96-Round Well 7 mm, Silicone	50/pk
AH0-8633	Sealing Mats, Pierceable, 96-Round Well 8 mm, Silicone	50/pk
AH0-8634	Sealing Mats, Pre-Slit, 96-Round Well 8 mm, Silicone	50/pk
AH0-7362	Sealing Tape Pad	10/pk
Vacuum Manifolds		
VM12	SPE 12-Position Vacuum Manifold Set, for tubes	ea
VM24	SPE 24-Position Vacuum Manifold Set, for tubes	ea
AH0-8950	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.

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

Removing Phospholipids Reduces Matrix Effects

Phree™ Phospholipid Removal Solutions

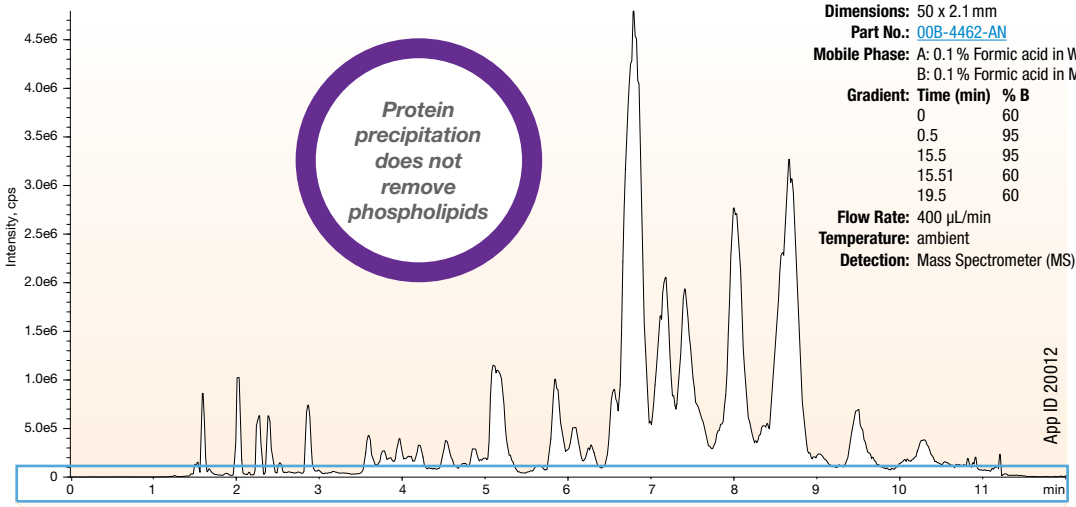
Total Phospholipid Profile

Protein Precipitation vs. Phree Phospholipid Removal Products

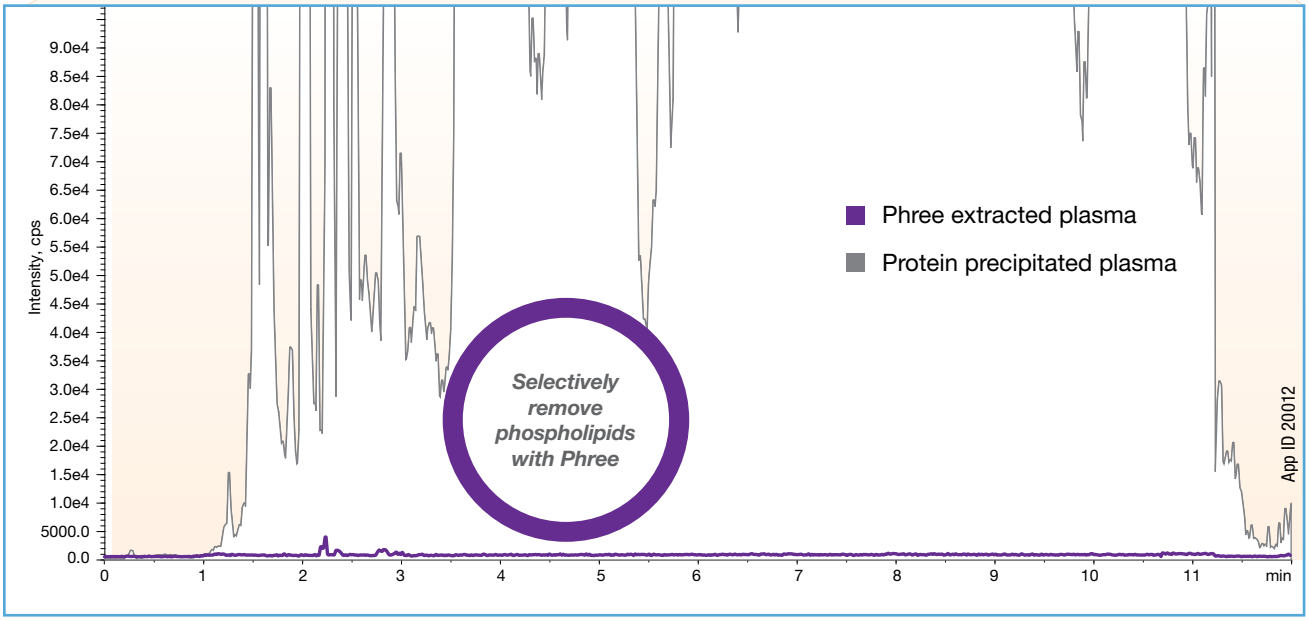
Plasma Cleanup: 100 µL plasma plus 300 µL acetonitrile with 1 % formic acid
Column: Kinetex™ 2.6 µm C18 100Å
Dimensions: 50 x 2.1 mm
Part No.: 00B-4462-AN
Mobile Phase: A: 0.1 % Formic acid in Water
B: 0.1 % Formic acid in Methanol
Gradient:

Time (min)	% B
0	60
0.5	95
15.5	95
15.51	60
19.5	60

Flow Rate: 400 µL/min
Temperature: ambient
Detection: Mass Spectrometer (MS) @ 425 °C; 184 amu



~ 50x Zoom

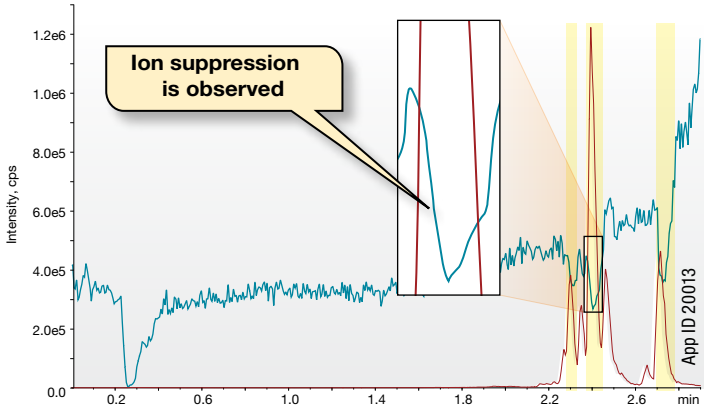


See How Phree Phospholipid Removal Plates Work
Visit: **www.phenomenex.com/Phree**

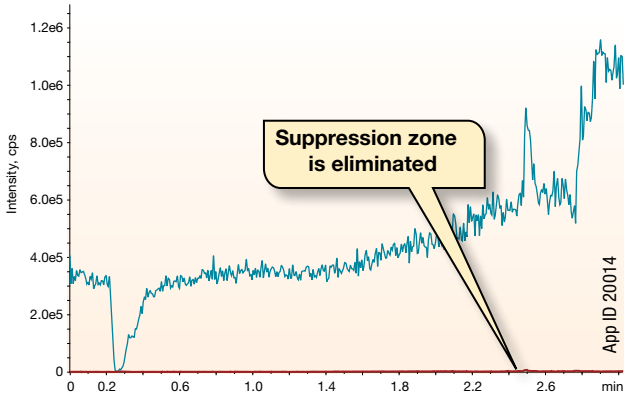
Reduce Ion Suppression

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).

Protein Precipitated Plasma



Phree Extracted Plasma



Suppression Zone

Phospholipids *m/z 184-184*

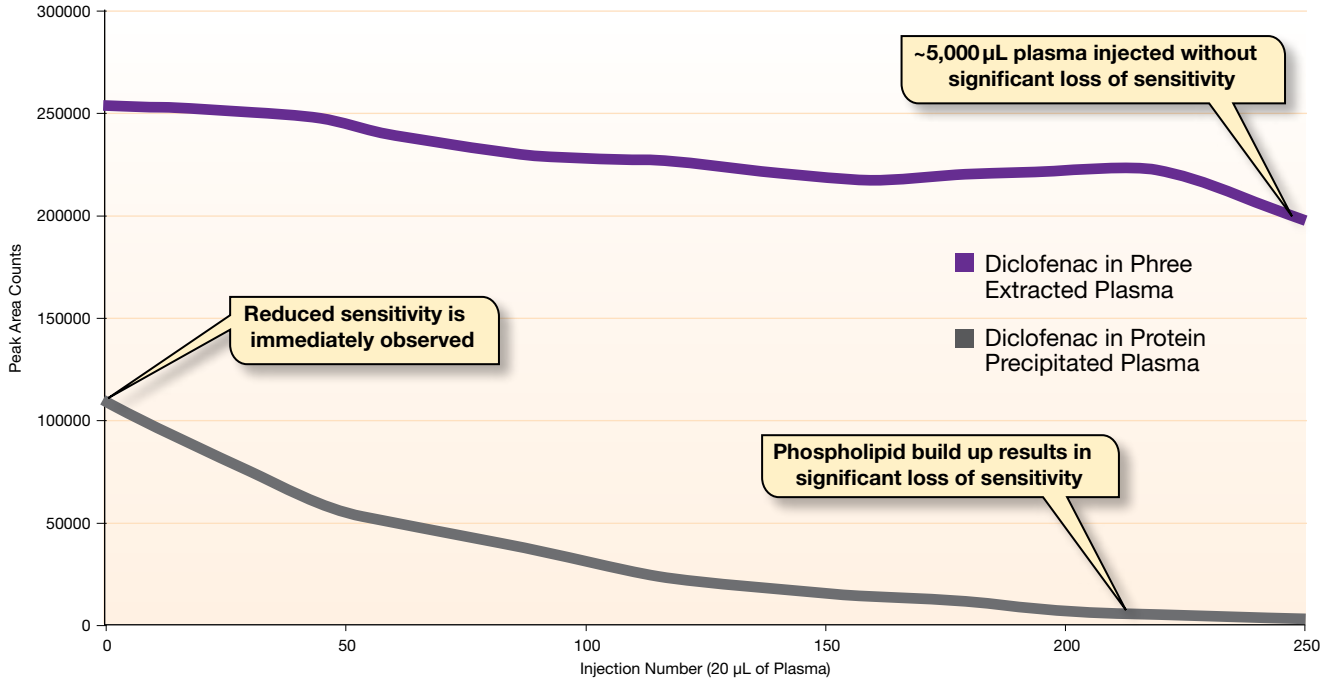
Amoxapine *m/z 314-271*

Amoxapine was infused post-column to establish an ion suppression/enhancement profile with both protein precipitated plasma (left) and Phree extracted plasma (right), showing that Phree can successfully reduce ion suppression.

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

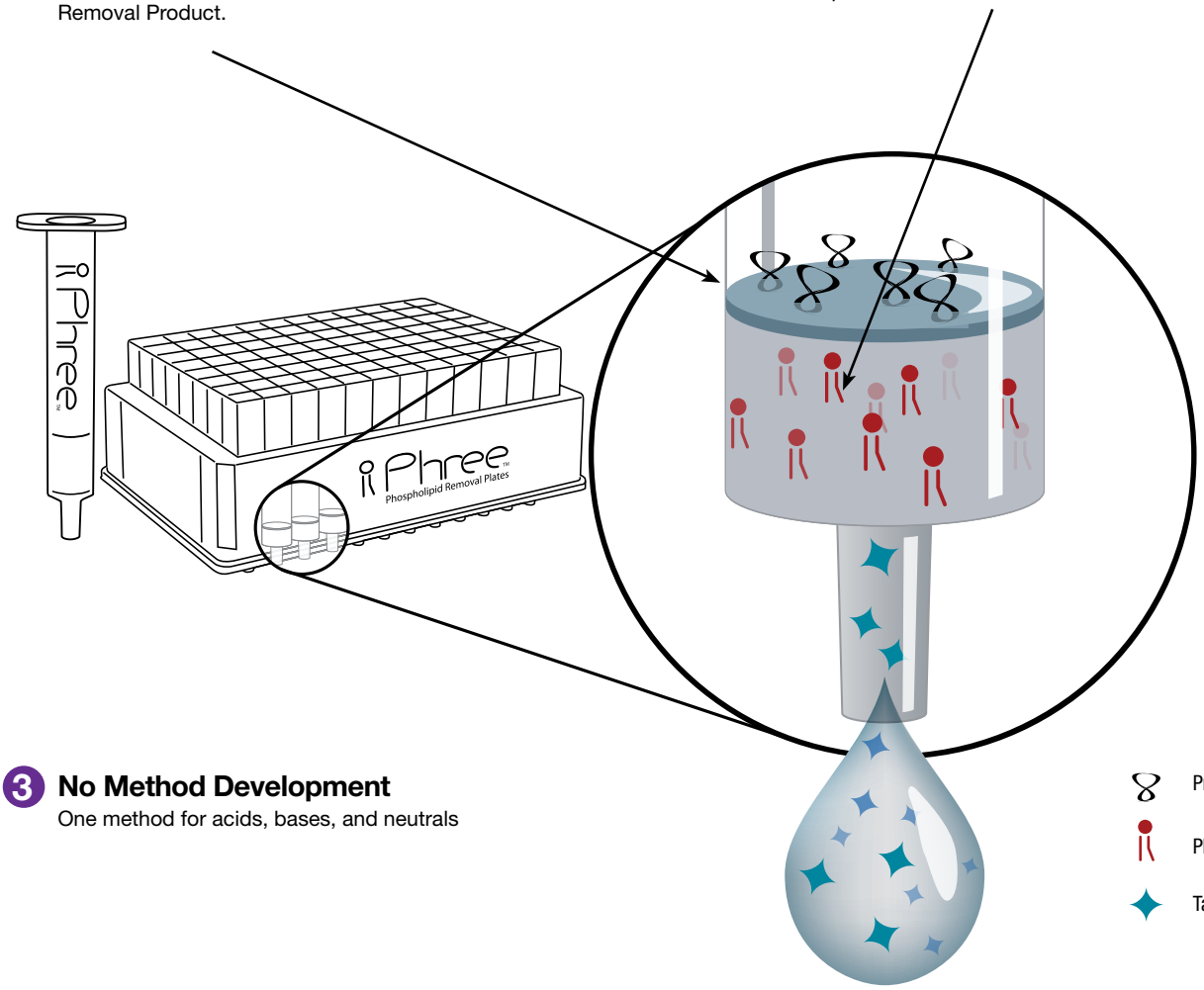
Phree™ Phospholipid Removal Solutions

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.

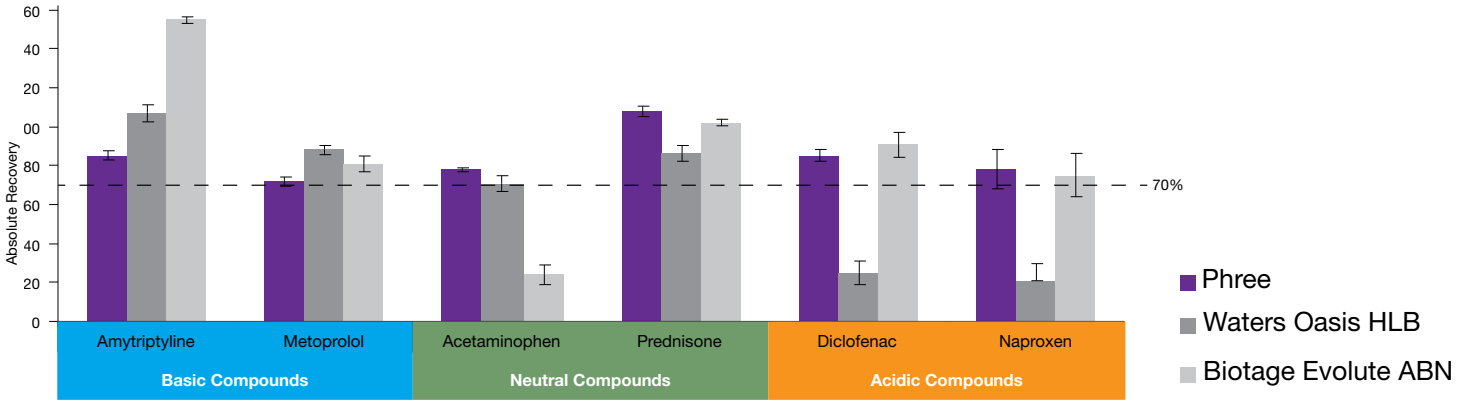


3 No Method Development

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.

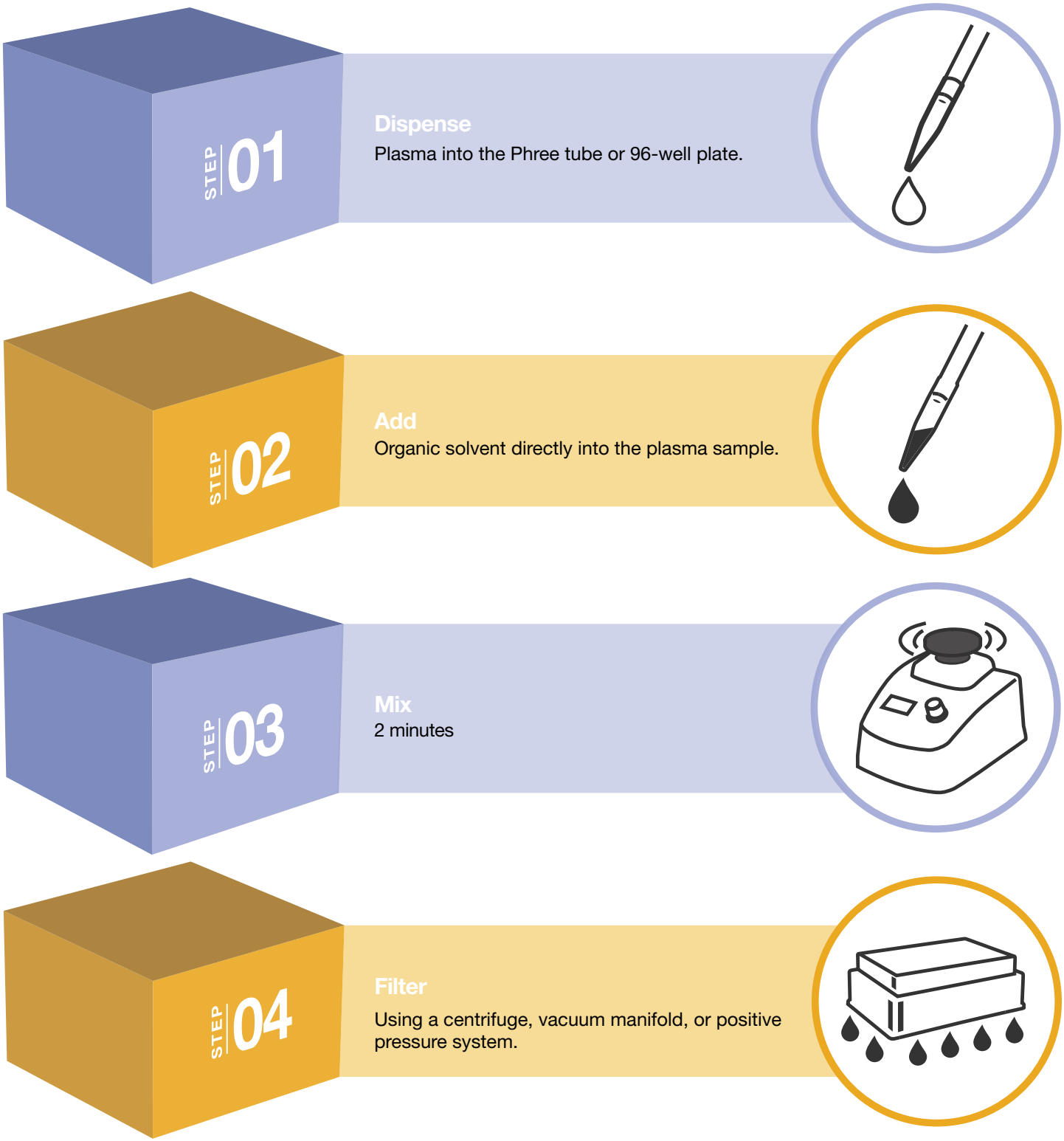


Phenomenex is not affiliated with Waters Seperation Corp. or Biotage AB Corp. Comparative seperations may not be representative of all applications.

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

Phree™ Phospholipid Removal Solutions



Ordering Information

Phree Phospholipid Removal Products

Part No.	Description	Unit
8B-S133-TAK	Phree Phospholipid Removal Tabbed 1 mL Tubes	100/box
8E-S133-TGB	Phree Phospholipid Removal 96-Well Plates	2/box

Accessories

Part No.	Description	Unit
Collection Plates (deep well, polypropylene)		
AH0-7192	96-Well Collection Plate 350 µL/well	50/pk
AH0-7193	96-Well Collection Plate 1 mL/well	50/pk
AH0-7194	96-Well Collection Plate 2 mL/well	50/pk
AH0-8635	96-Well Collection Plate, 2 mL Square/Round-Conical	50/pk
AH0-8636	96-Well Collection Plate, 2 mL Round/Round, 8 mm	50/pk
AH1-7025	96-Well Collection Plate, 1 mL/well Round, 7 mm	50/pk
AH0-9332	96-Well Collection Plate, 1.2 mL/well Round Well Round Bottom	50/pk
AH0-9333	96-Well Collection Plate, 0.5 mL/well V-Bottom, 7 mm Sterile	50/pk
AH0-9341	96-Well Collection Plate, 0.5 mL/well Conical Bottom 7 mm	50/pk
AH1-7036	96-Well Low-Bind Collection Plate, 2 mL/well Round Well Conical Bottom (glass lined)	120/pk
Sealing Mats		
AH0-8597	Sealing Mats, Pierceable, 96-Square Well, Silicone	50/pk
AH0-8598	Sealing Mats, Pre-Slit, 96-Square Well, Silicone	50/pk
AH0-8631	Sealing Mats, Pierceable, 96-Round Well 7 mm, Silicone	50/pk
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AH0-8633	Sealing Mats, Pierceable, 96-Round Well 8 mm, Silicone	50/pk
AH0-8634	Sealing Mats, Pre-Slit, 96-Round Well 8 mm, Silicone	50/pk
AH0-7362	Sealing Tape Pad	10/pk
Vacuum Manifolds		
VM12	SPE 12-Position Vacuum Manifold Set, for tubes	ea
VM24	SPE 24-Position Vacuum Manifold Set, for tubes	ea
AH0-8950	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

Sample Preparation Specialists are Ready to Assist You.

Contact your Sample Preparation Specialist
By email: **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)

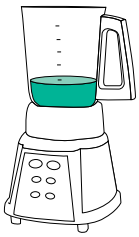
An aliquot of the organic layer from the extraction step is subjected to further clean up by dispersive SPE. This step selectively removes unwanted interferences such as lipids and pigments.

www.phenomenex.com/roQ

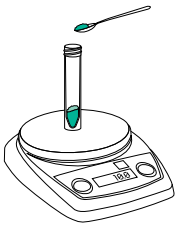
The QuEChERS Technique

roQ™ QuEChERS Kits

STEP 01 Extraction



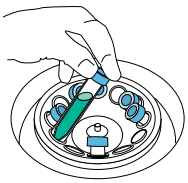
Blend
fruits or vegetables to be analyzed.



Weigh
blended sample.

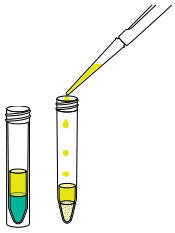
Add
salts and acetonitrile.

Shake
tube for 1 minute.

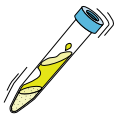


Centrifuge
tube for 5 minutes.

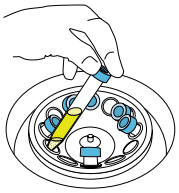
STEP 02 Clean up/Dispersive SPE (dSPE)



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 ($MgSO_4$)**
  Induces phase separation between water content in sample and acetonitrile layer
- **Sodium Acetate (NaAOc)**
  Buffers the sample to stabilize pH

Original Non-Buffered Method

Salts used:

- **Magnesium Sulfate ($MgSO_4$)**
  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 ($MgSO_4$)**
  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 ($MgSO_4$)**
  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

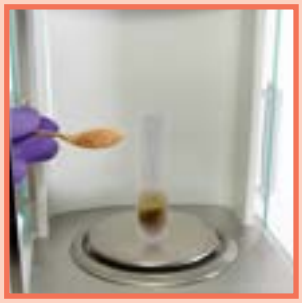
roQ™ QuEChERS Kits

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

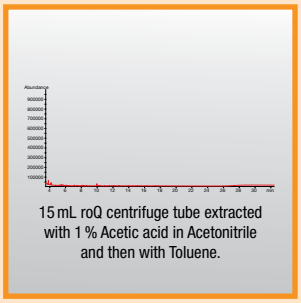


Easy Pour Salt Packets

Quality

Leak-Free Tubes

Low Leachate Tubes



15 mL roQ centrifuge tube extracted with 1 % Acetic acid in Acetonitrile and then with Toluene.

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

Choose Your QuEChERS Kit

roQ™ QuEChERS Kits

STEP 01 Extraction

AOAC
AOAC 2007.01 Method
6.0 g $MgSO_4$, 1.5 g NaOAc
KS0-8911

ORIGINAL
Non-Buffered Method
4.0 g $MgSO_4$, 1.0 g NaCl
KS0-8910
6.0 g $MgSO_4$, 1.5 g NaCl
KS0-8912

EN
EN 15662 Method
4.0 g $MgSO_4$, 1.0 g NaCl, 1.0 g SCTD, 0.5 g SCDS
KS0-8909

STEP 02 Clean up/Dispersive SPE (dSPE)

	AOAC 2007.01		EN 15662	
	1 mL	8 mL	1 mL	6 mL
General 	150 mg $MgSO_4$ 50 mg PSA KS0-9511	1200 mg $MgSO_4$ 400 mg PSA KS0-9515	150 mg $MgSO_4$ 25 mg PSA KS0-9503	900 mg $MgSO_4$ 150 mg PSA KS0-9507
Fats and Waxes 	150 mg $MgSO_4$ 50 mg PSA 50 mg C18E KS0-9512	1200 mg $MgSO_4$ 400 mg PSA 400 mg C18E KS0-9516	150 mg $MgSO_4$ 25 mg PSA 25 mg C18E KS0-9504	900 mg MgSO4 150 mg PSA 150 mg C18E KS0-9508
Pigmented 	150 mg $MgSO_4$ 50 mg PSA 50 mg GCB KS0-9513	1200 mg $MgSO_4$ 400 mg PSA 400 mg GCB KS0-9517	150 mg $MgSO_4$ 25 mg PSA 2.5 mg GCB KS0-9505	900 mg $MgSO_4$ 150 mg PSA 15 mg GCB KS0-9509
Highly Pigmented 	–	–	150 mg $MgSO_4$ 25 mg PSA 7.5 mg GCB KS0-9506	900 mg MgSO4 150 mg PSA 45 mg GCB KS0-9510
Pigments and Fats 	150 mg $MgSO_4$ 50 mg PSA 50 mg GCB 50 mg C18E KS0-9514	1200 mg $MgSO_4$ 400 mg PSA 400 mg GCB 400 mg C18E KS0-9518	–	–

Recommended roQ Extraction and dSPE Kits

roQ™ QuEChERS Kits

Mycotoxins Screening—Grains

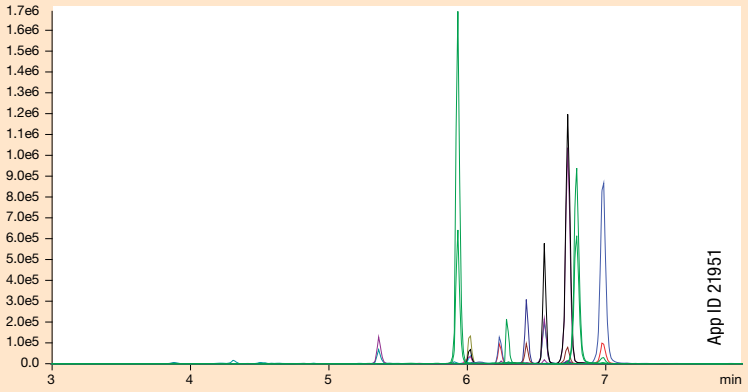
Extraction
EN 15662 Method
4.0 g $MgSO_4$, 1.0 g NaCl,
1.0 g SCTD, 0.5 g SCDS

KS0-8909

Clean up/dSPE
EN 15662 Method
15 mL dSPE Kits
900 mg $MgSO_4$, 150 mg PSA

KS0-9507

Analytical Column: Kinetex™ Core-Shell 2.6 µm Biphenyl



Pesticide Screening—Kale

Extraction
EN 15662 Method
4.0 g $MgSO_4$, 1.0 g NaCl,
1.0 g SCTD, 0.5 g SCDS

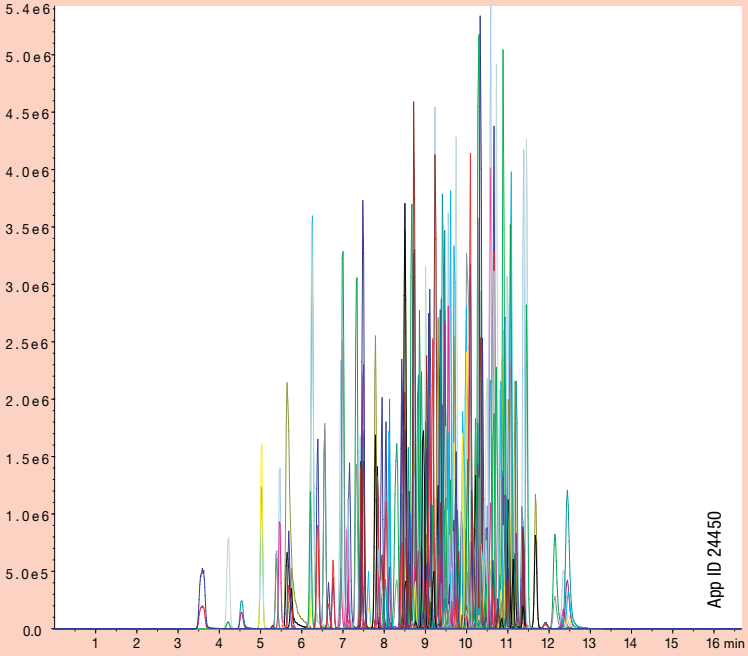
KS0-8909

Clean up/dSPE
EN 15662 Method
15 mL dSPE Kits
900 mg $MgSO_4$, 150 mg PSA, 15 mg GCB

KS0-9509

Read the full technical note online, search TN-0115 on www.phenomenex.com

Analytical Column: Kinetex Core-Shell 5 µm Biphenyl



Antibiotics—Meats

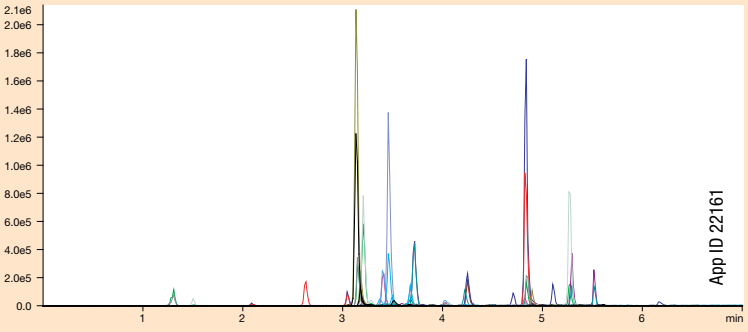
Extraction
AOAC 2007.01 Method
6.0 g $MgSO_4$, 1.5 g NaOAc

KS0-8911

Clean up/dSPE
15 mL dSPE Kits
900 mg $MgSO_4$, 150 mg PSA, 15 mg GCB
150 mg C18E

KS0-9509

Analytical Column: Kinetex Core-Shell 2.6 µm Biphenyl



Ordering Information

roQ™ QuEChERS Kits

roQ™ Extraction Kits

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

Description	Unit	Part No.
AOAC 2007.01 Method Extraction Kits		
6.0 g $MgSO_4$, 1.5 g NaOAc	50/pk	KS0-8911*
EN 15662 Method Extraction Kits		
4.0 g $MgSO_4$, 1.0 g NaCl, 1.0 g SCTD, 0.5 g SCDS	50/pk	KS0-8909*
Original Non-buffered Method Extraction Kits		
4.0 g $MgSO_4$, 1.0 g NaCl	50/pk	KS0-8910
6.0 g $MgSO_4$, 1.5 g NaCl	50/pk	KS0-8912

*AOAC and EN Extraction Kits also available in traditional non-collared 50 mL centrifuge tubes, Part No.: KS0-8911-NC and KS0-8909-NC

roQ dSPE Kits

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

Description	Unit	Part No.
2 mL dSPE Kits		
150 mg $MgSO_4$, 25 mg PSA, 25 mg C18E	100/pk	KS0-9504
150 mg $MgSO_4$, 25 mg PSA, 2.5 mg GCB	100/pk	KS0-9505
150 mg, $MgSO_4$, 25 mg PSA, 7.5 mg GCB	100/pk	KS0-9506
150 mg $MgSO_4$, 25 mg PSA	100/pk	KS0-9503
150 mg $MgSO_4$, 50 mg PSA, 50 mg C18E, 50 mg GCB	100/pk	KS0-9514
150 mg $MgSO_4$, 50 mg PSA, 50 mg C18E	100/pk	KS0-9512
150 mg $MgSO_4$, 50 mg PSA, 50 mg GCB	100/pk	KS0-9513
150 mg $MgSO_4$, 50 mg PSA	100/pk	KS0-9511
15 mL dSPE Kits		
900 mg $MgSO_4$, 150 mg PSA, 150 mg C18E	50/pk	KS0-9508
900 mg $MgSO_4$, 150 mg PSA, 15 mg GCB	50/pk	KS0-9509
900 mg $MgSO_4$, 150 mg PSA, 45 mg GCB	50/pk	KS0-9510
900 mg $MgSO_4$, 150 mg PSA	50/pk	KS0-9507
1200 mg $MgSO_4$, 400 mg PSA, 400 mg C18E, 400 mg GCB	50/pk	KS0-9518
1200 mg $MgSO_4$, 400 mg PSA, 400 mg C18E	50/pk	KS0-9516
1200 mg $MgSO_4$, 400 mg PSA, 400 mg GCB	50/pk	KS0-9517
1200 mg $MgSO_4$, 400 mg PSA	50/pk	KS0-9515

roQ Extraction Salt Packets

Salt packets only. Centrifuge tubes not included.

Description	Unit	Part No.
AOAC 2007.01 Method Extraction Packets		
6.0 g $MgSO_4$, 1.5 g NaOAc	50/pk	AH0-9043
EN 15662 Method Extraction Packets		
4.0 g $MgSO_4$, 1.0 g NaCl, 1.0 g SCTD, 0.5 g SCDS	50/pk	AH0-9041
Original Non-Buffered Method Extraction Packets		
4.0 g $MgSO_4$, 1.0 g NaCl	50/pk	AH0-9042
6.0 g $MgSO_4$, 1.5 g NaCl	50/pk	AH0-9044

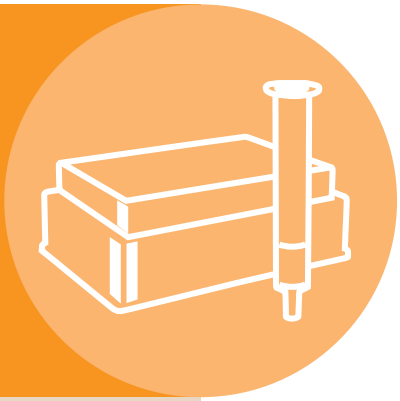
Bulk roQ QuEChERS Sorbents

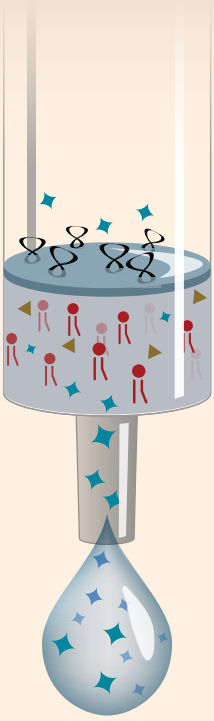
Phase	10 g	100 g
C18-E	—	04G-4348
GCB (Graphitized Carbon Black)	04D-4615	04G-4615
PSA	—	04G-4610

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

Now with Novum PRO SLE!

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

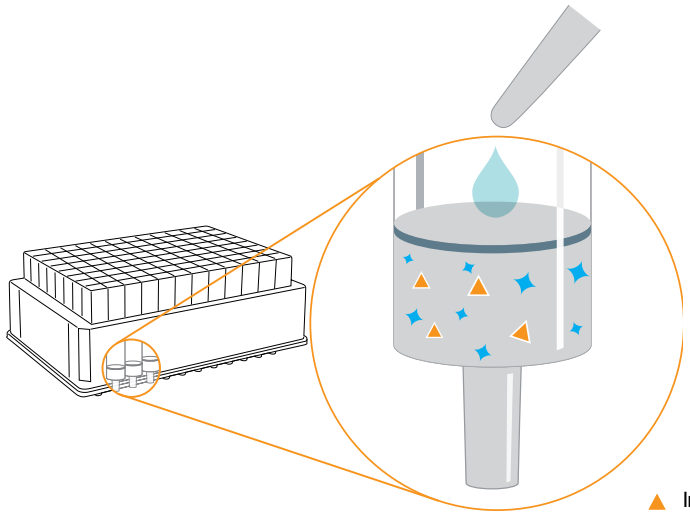
A Simplified Way to Do Liquid-Liquid Extraction

An Easy, Automatable Procedure

novum™ simplified liquid extraction
PATENT PENDING

strata™ DE Supported Liquid Extraction

STEP 01 Load Your Sample in Aqueous Solvent

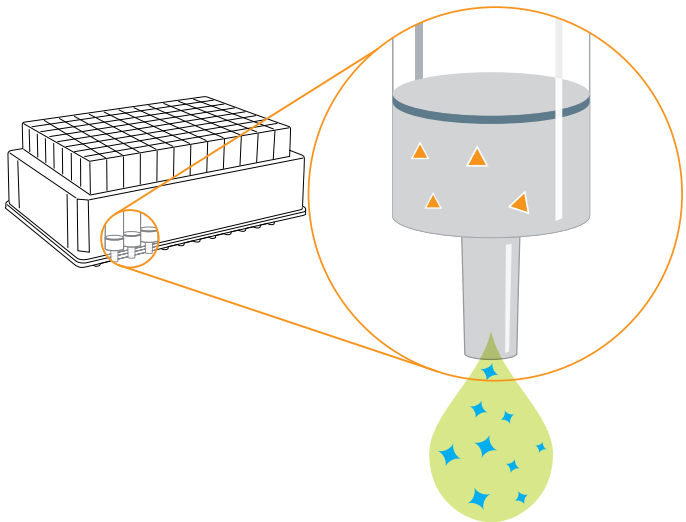


No emulsions

▲ Interferences
(i.e. phospholipids, proteins, salts, etc.)

✦ Target Analytes

STEP 02 Collect your Target Analytes in Water Immisible Solvent



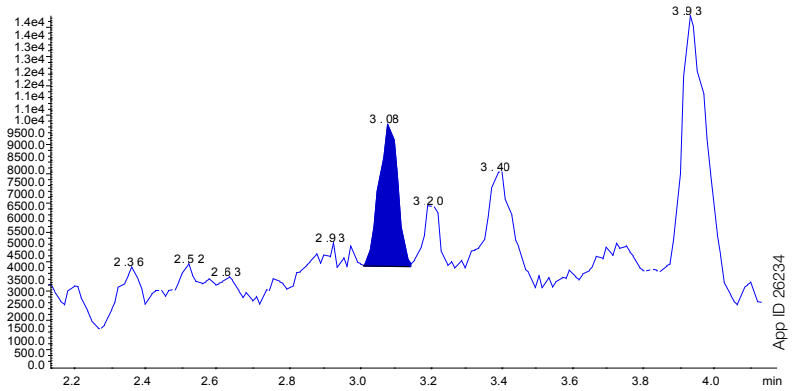
No need to manually separate liquid phases

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

Select Your SLE Sorbent!

View the differnces in our sorbent options

novum™ simplified liquid extraction		strata™ DE Supported Liquid Extraction
Synthetic	Sorbent	Diatomaceous Earth
Lot-to-lot consistency and reproducibility	Advantages	Cost effective and large volume capabilities
Ethyl Acetate, Methyl Tert-Butyl Ether (MTBE)	Extraction Solvents	Dichloromethane (DCM) Hexane, MTBE, Ethyl Acetate
MINI 96-Well Plates, MAX 96-Well Plates	Plate Formats	200µL 96-Well Plates, 400µL 96-Well Plates
1cc, 3cc, 6cc, 12cc	Tube Formats	1cc, 3cc, 6cc, 12cc, 60cc

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

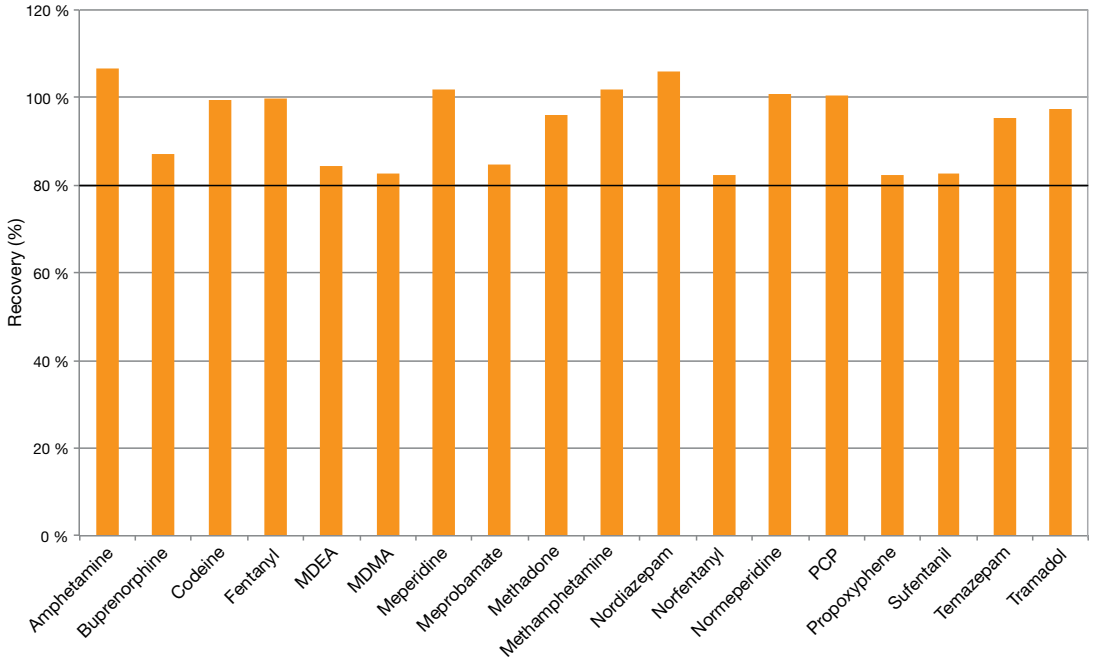
Synthetic SLE Sorbent

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

strata™ DE
Supported Liquid Extraction

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 wont require you to sacrifice your results. Recommended as a direct alternative to traditional diatomaceous earth SLE sorbents.

Load Your Sample in Aqueous Solvent

Collect your Target Analytes in Water Immisible Solvent

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 presure 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 Places.

Novum SLE Well Plates		
Part No.	**Description**	**Unit**
8E-S138-FGA	Novum SLE MINI 96-Well Plate	1/pk
8E-S138-5GA	Novum SLE MAX 96-Well Plate	1/pk

Part No.	**Description**	**Unit**
8E-S138-FGA	Novum SLE MINI 96-Well Plate	1/pk
8E-S138-5GA	Novum SLE MAX 96-Well Plate	1/pk
8E-S539-FGA	Novum PRO SLE MINI, 96-Well Plate	1/pk
8E-S539-5GA	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**
8E-S325-FGB	Strata DE SLE 200 µL 96-Well Plate	2/pk
8E-S325-5GB	Strata DE SLE 400 µL 96-Well Plate	2/pk

Novum SLE Tubes

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

Strata DE SLE Tubes

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

Tube Accessories

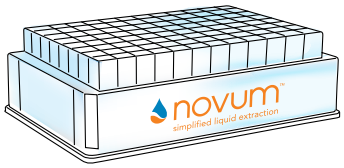
Vacuum Manfolds		
Part No.	**Description**	**Unit**
AH0-6023	12-Position Vacuum Manifold Set	ea
AH0-6024	24-Position Vacuum Manifold Set	ea

Well Plate Accessories

Part No.	Description	Unit
Collection Plates (deep well, polypropylene)		
AH0-7192	96-Well Collection Plate, 350 µL/well	50/pk
AH0-7193	96-Well Collection Plate, 1mL/well	50/pk
AH0-7194	96-Well Collection Plate, 2mL/well	50/pk
AH0-8635	96-Well Collection Plate, 2mL Square/Round-Conical	50/pk
AH0-8636	96-Well Collection Plate, 2mL Round/Round, 8mm	50/pk
AH1-7025	96-Well Collection Plate, 1mL/well Round, 7mm	50/pk
AH0-9332	96-Well Collection Plate, 1.2 mL/well Round Well Round Bottom	50/pk
AH0-9333	96-Well Collection Plate, 0.5 mL/well V-Bottom, 7 mm Sterile	50/pk
AH0-9341	96-Well Collection Plate, 0.5 mL/well Conical Bottom 7 mm	50/pk
AH1-7036	96-Well Low-Bind Collection Plate, 2 mL/well Round Well Conical Bottom (glass lined)	120/pk
Sealing Mats		
AH0-8597	Sealing Mats, Pierceable, 96-Square Well, Silicone	50/pk
AH0-8598	Sealing Mats, Pre-Slit, 96-Square Well, Silicone	50/pk
AH0-8631	Sealing Mats, Pierceable, 96-Round Well 7mm, Silicone	50/pk
AH0-8632	Sealing Mats, Pre-Slit, 96-Round Well 7mm, Silicone	50/pk
AH0-8633	Sealing Mats, Pierceable, 96-Round Well 8mm, Silicone	50/pk
AH0-8634	Sealing Mats, Pre-Slit, 96-Round Well 8mm, Silicone	50/pk
AH0-7362	Sealing Tape Pad	10/pk
Vacuum Manfolds		
AH0-8950	96-Well Plate Manifold, Universal with Vacuum Gage	ea

strata™ DE
Supported Liquid Extraction

novum™
simplified liquid extraction



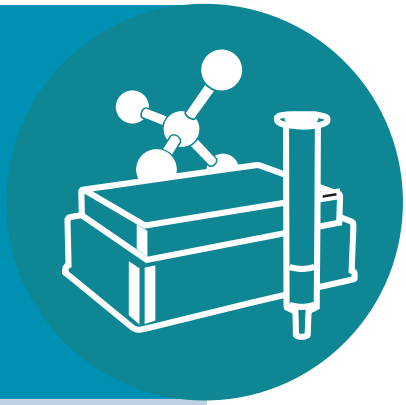
Diverse SLE sorbent options that work with your unique extractions!

BE-HAPPY™ GUARANTEE

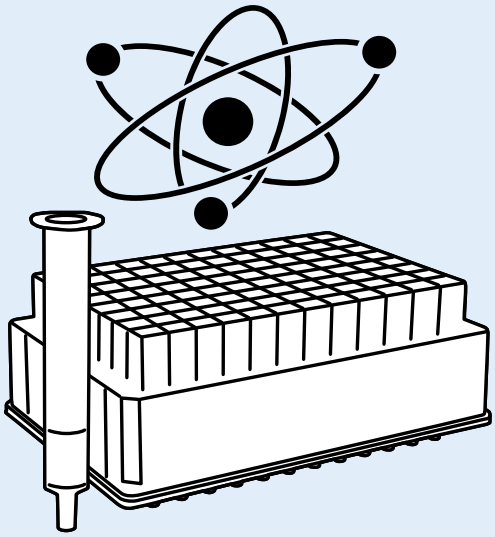
Your happiness is our mission. Take 45 days to try our products. If you are not happy, we'll make it right.
www.phenomenex.com/behappy

Watch "An Introduction to Supported Liquid Extraction"
Visit:
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



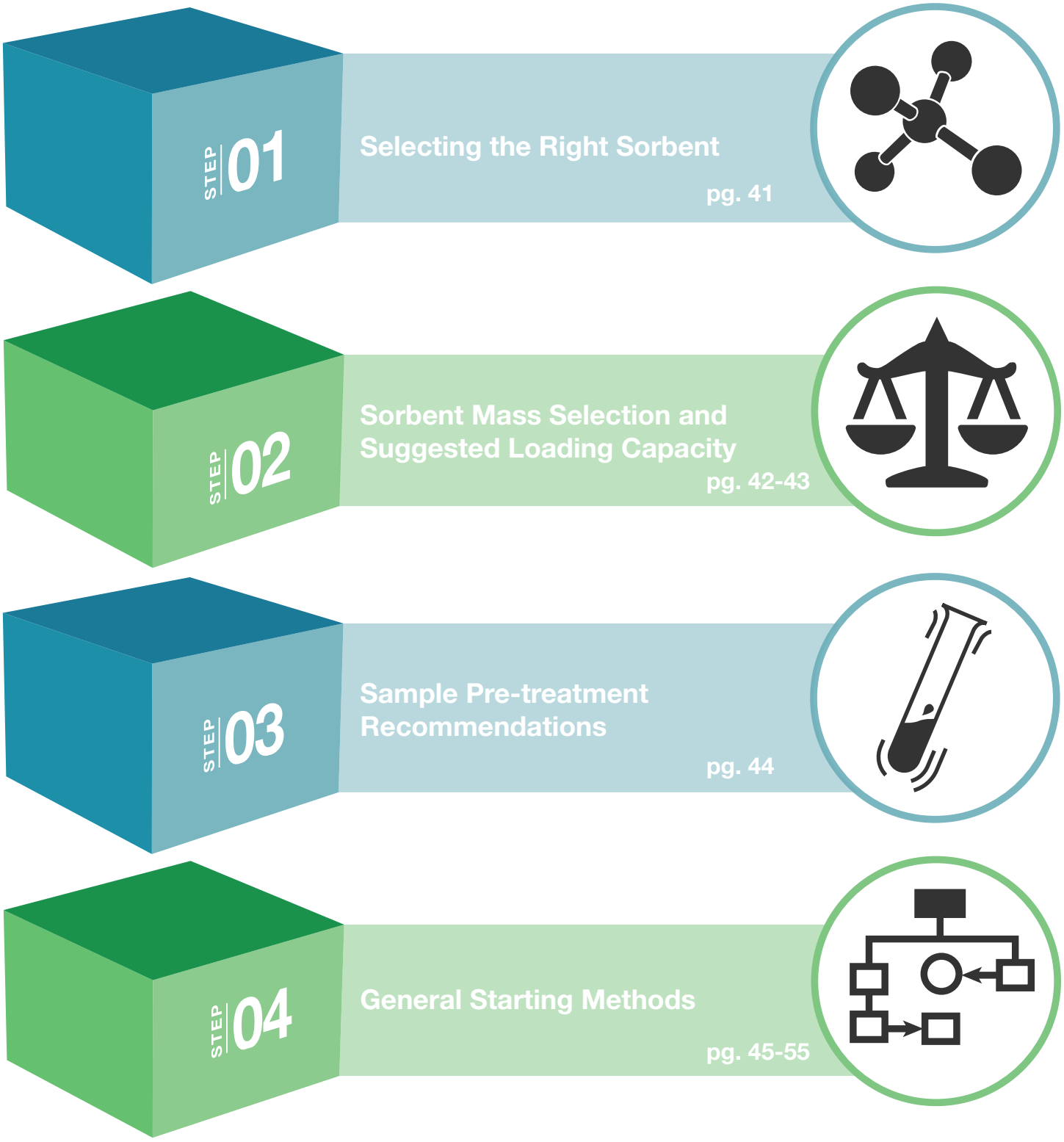
- Targeted analyte extraction for clean extracts
- Concentration of samples for better chromatographic results
- Solvent switching for GC or LC compatibility
- Clean extracts lead to longer column lifetime and better chromatographic results

www.phenomenex.com/SPE

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

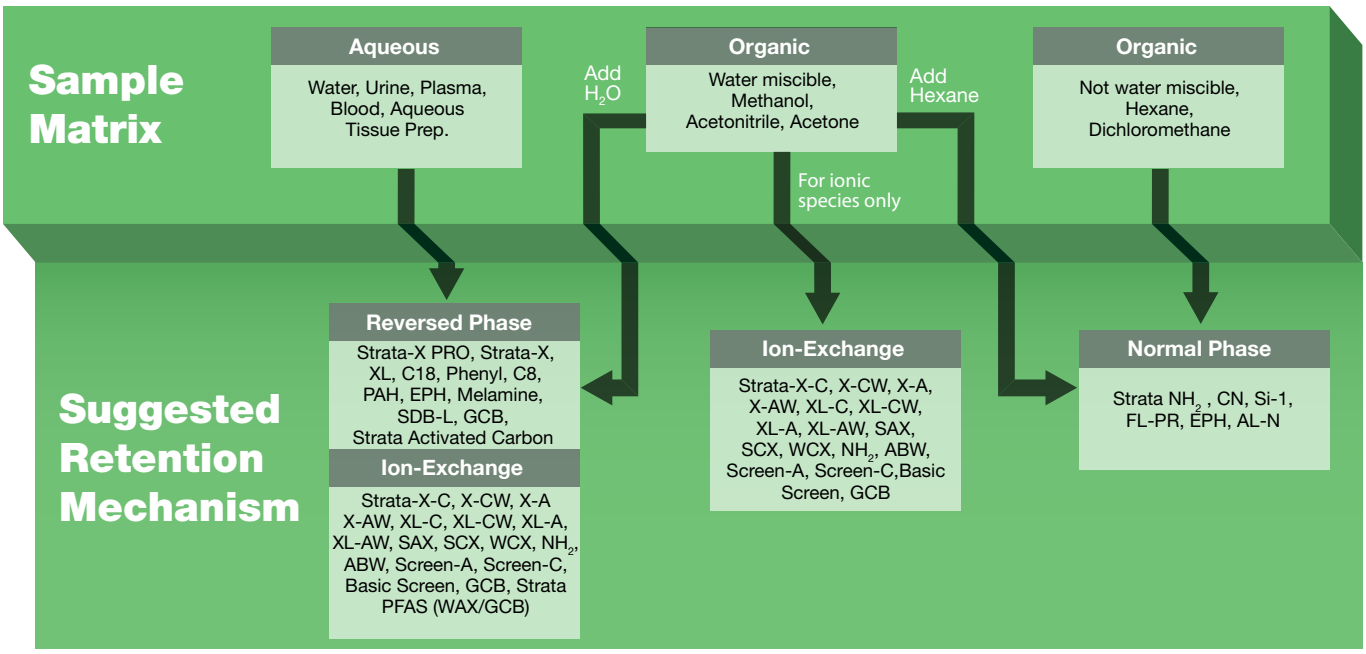


STEP 01

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

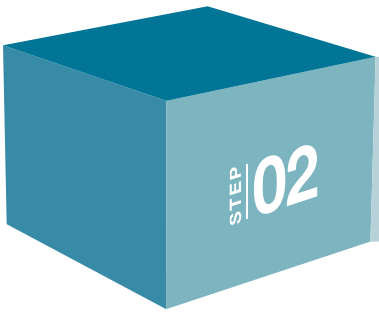
Identify the Possible SPE Retention Mechanism

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
Reversed Phase	R hydrocarbon aromatic	R hydrocarbon aromatic	X, XL	C18-E, C18-U, C8 C18-T PH, SDBL
Normal Phase	R - OH hydroxyl R - NH_2 amino	CN polar OH polar		CN, NH_2 Si-1, CN, EPH
Ion-Exchange	NR_4^+ strong RNH_3^+ weak RSO_3^- strong RCO_2^- weak	$-O_2C$—weak $-O_3S$—strong ^+H_3N—weak ^+R_3N—strong	X-CW, XL-CW X-C X-AW, XL-AW X-A, XL-A	WCX Screen-C, SCX NH_2 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

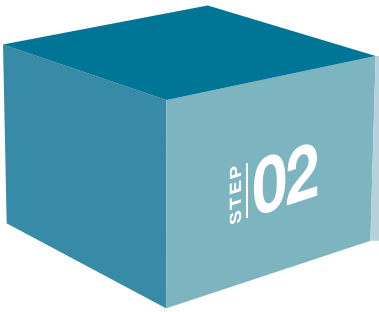
Sample Matrix	Sorbent Mass	Strata-X, X-C, X-CW, X-A, X-AW	Strata-XL, XL-C, XL-CW, XL-A, XL-AW
Blood, serum, plasma	30 mg	250 µL	125 µL
Urine	30 mg	1 mL	500 µL
Filtered tissue homogenates	60 mg	100 mg	50 mg
Environmental Samples	**Sorbent Mass**	**Strata-X, X-C, X-CW, X-A, X-AW**	**Strata-XL, XL-C, XL-CW, 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.

strataX Sorbent Mass	2mg	10 mg	30 mg	60 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	25µL	100 µL	300 µL	600 µL	1 mL	1.5 mL	2 mL	5 mL	10 mL	20 mL	50 mL	100 mL
Recommended Wash and Elution Volume 8 bed volumes	50µL	200 µL	600 µL	1.2 mL	2 mL	3 mL	4 mL	10 mL	20 mL	40 mL	100 mL	200 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.



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 µL
Urine	50 mg sorbent per 500 µL
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.

strata™ 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 µL	300 µL	600 µL	900 µL	1.2 mL	3 mL	6 mL	12 mL	30 mL	60 mL
Recommended Wash and Elution Volume 8 bed volumes	120 µL	600 µL	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.

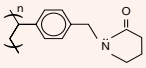
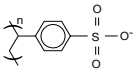
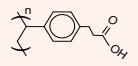
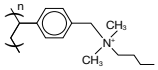
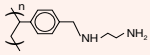
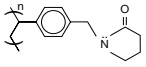
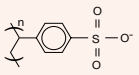
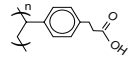
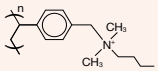
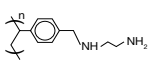
Reproducible, high efficiency solid phase extraction requires that the sample be made liquid prior to loading onto a SPE device. The SPE sample should meet the following conditions:

- 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)	
Urine, Whole blood, Serum, Plasma, Bile, etc.	Dilute sample 1:2 with appropriate buffer, precipitate proteins if proteinaceous ($ZnSO_4$, ACN), hydrolyze urinary glucuronides, disruption of protein binding (sonication, enzymatic, acids/bases).
Oral fluid, Saliva	Pre-treat sample according to manufacturers recommendations. Add appropriate buffer for analyte extraction and vortex before loading onto SPE cartridge.
Biological Samples (solid)	
Organ tissues, Feces, GI contents	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.
Hair	Cut hair into very small pieces and add appropriate buffer and internal standard. Proceed to incubate for specified amount of time.
Sample Matrix	
Water (waste, river, etc.)	Buffer to appropriate pH and filter particulates from sample.
Soil, Sludge	Homogenize with organic or aqueous solvent depending upon analyte solubility. Settle, decant and filter supernatant; perform Soxhlet extraction.
Ointments, Creams	**Oil-based** Dissolve in non-polar organic (hexane) and extract via polar SPE. **Water-based** Dissolve in water or water miscible organic (methanol) and extract via non-polar SPE.
Fruit, Vegetable, Herbs, Cannabis	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).

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.
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Microelution SPE
For small volume samples without the dry down step for added sensitivity.
www.phenomenex.com/Microelution

General Starting Methods

Strata-X / Strata-XL Reversed Phase

for Neutral Compounds

Condition
1 mL Methanol

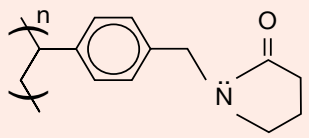
Equilibrate
1 mL Water

Load
Diluted Sample

Wash
1 mL 5-60 % Methanol

Elute
2x 500 µL 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 hydroslysis 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.

Strata™-X-C / Strata-XL-C

Strong Cation-Exchange & Reversed Phase

for Bases with pK_a ≤ 10.5

Condition
1 mL Methanol

Equilibrate
1 mL Acidified Water

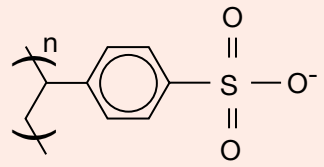
Load
Diluted Acidified Sample

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 µL 5 % NH_4OH in Methanol

Strong Cation-Exchange: sulfonic acid ligand



Strata-X-CW / Strata-XL-CW

Weak Cation-Exchange & 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

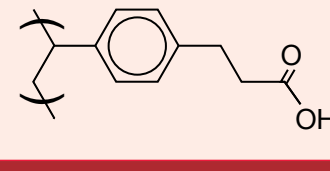
Wash
1 mL Water, pH 6-7

Wash
1 mL Methanol
(collect this fraction to analyze Neutrals/Acids)

Elute Any Base
2x 500 µL 5 % Formic Acid in Methanol

Elute Weak Bases
2x 500 µL 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.

strata™-X

Strata-X-A / Strata-XL-A

Strong Anion-Exchange & Reversed Phase

for Acids with pK_a > 2

Condition
1 mL Methanol

Equilibrate
1 mL Water

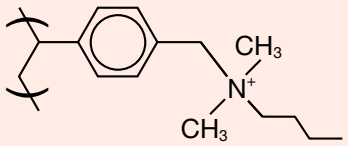
Load
Diluted Sample pH 6-7

Wash
1 mL 25 mM Ammonium Acetate Buffered, pH 6-7

Wash
1 mL Methanol (collect this fraction to analyze Neutral/Bases)

Elute Acids
2x 500 µL 5 % Formic Acid in Methanol

Strong Anion-Exchange: di-methylbutyl quaternary amine ligand



Strata-X-AW / Strata-XL-AW

Weak Anion-Exchange & Reversed Phase

for Acids with pK_a ≤ 5

Condition
1 mL Methanol

Equilibrate
1 mL Water, pH 6-7

Load
Diluted Sample, pH 6-7

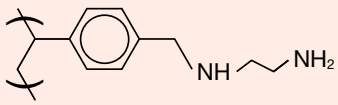
Wash
1 mL 25 mM Ammonium Acetate Buffered, pH 6-7

Wash
1 mL Methanol

Elute Any Acid
2x 500 µL 5 % NH_4OH in Methanol

Elute Weak Acids
2x 500 µL 5 % Formic Acid in Methanol

Weak Anion-Exchange: di-amino ligand



Need help getting your method started?

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Easy as 1-2-3

Develop a method in less than a minute:

www.phenomenex.com/SPEMethodDevelopment

Still have additional questions about SPE?

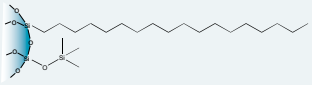
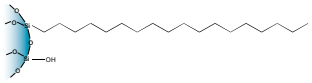
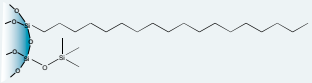
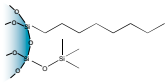
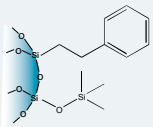
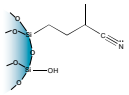
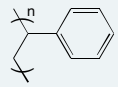
Chat with a live technical expert

www.phenomenex.com/chat

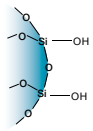
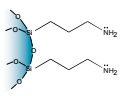
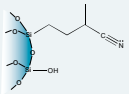
Strata™ Silica-Based SPE Sorbents

- 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_2	Extraction of strong anions		METHOD 6
CN	Extraction of polar compounds		METHOD 6

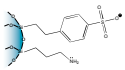
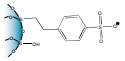
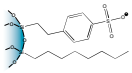
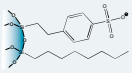
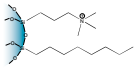
General Starting Methods

strata™

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_2	Bond Elut Aminopropyl (NH_2)	NH_2	Amino Propyl	DSC-NH_2
CN	Bond Elut Cyano (CN-E)	CN	CN	DSC-CN

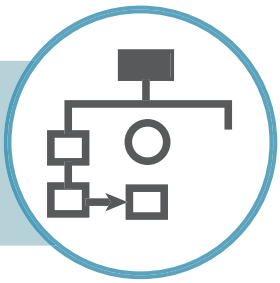
Strata™ Silica-Based SPE Sorbents (*cont'd*)

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		Inquire
SAX	Extraction of weak anions		METHOD 5
SCX	Extraction of 1°, 2°, and 3° amines		METHOD 3
WCX	Extraction of quaternary amines		METHOD 2
Screen-C	Mixed-mode cation-exchange that also provides hydrophobic retention		METHOD 3
Screen-C GF	Large particle size, mixed-mode cation-exchange that also provides hydrophobic retention		METHOD 3
Screen-A	Mixed-mode anion-exchange that also provides hydrophobic retention		METHOD 5
NH_2	Extraction of strong anions		METHOD 4

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	METHOD 6
EPH (Extractable Petroleum Hydrocarbons)	Fractionation of aliphatic and aromatic hydrocarbons from environmental samples		METHOD 6
Activated Carbon	Extraction of polar analytes in aqueous matrices		METHOD 7
GCB	Extraction of pesticides from water, fruits and vegetables; High polar and non-polar analytes		METHOD 8
PFAS (WAX/ GCB)	Fast SPE extraction of Polyfluoroalkyl Substances (PFAS) from diverse matrices	Proprietary	METHOD 9



strata™

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®	HCX	Clean Screen® DAU	
	Bond Elut Certify I HF		Xtract® DAU	
	Bond Elut Certify II	HAX	Clean Screen THC	
NH_2	Bond Elut Aminopropyl (NH_2)	NH_2	Amino Propyl	DSC-NH_2

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_4OH 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_4OH in Methanol

*100 mg sorbent mass

STEP 04

General Starting Methods

strata™ Solid Phase Extraction

Strata NH_2

(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_4OH 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

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

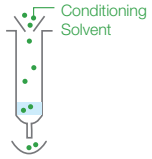
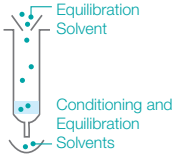
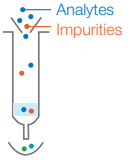
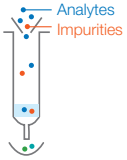
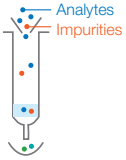
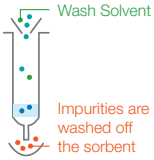
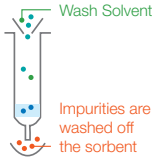
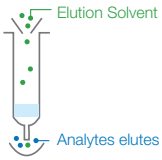
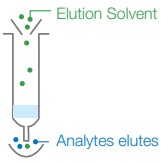
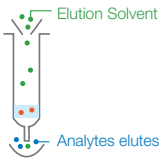
Elute
4 mL 0.3% Ammonium hydroxide in Methanol

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

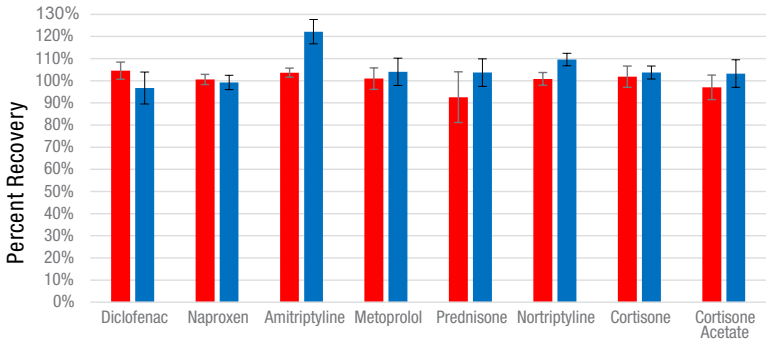
*100 mg sorbent mass

Strata-X PRO

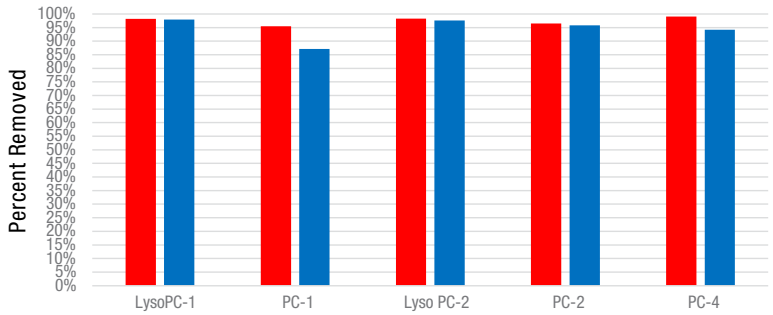
An innovative solid phase extraction (SPE) sorbent that offers a faster, cleaner way to extract your samples, completely revolutionizing traditional SPE methods. Strata-X PRO offers improved and rugged polymeric sorbent performance combined with matrix removal technology for a revolutionary solution. 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
RELIABLE 5 STEPS	RAPID 3 STEPS	SUPER EXPRESS 2 STEPS
1 CONDITION 		
2 EQUILIBRATE 	NO CONDITION OR EQUILIBRATION STEPS! 	
3 LOAD SAMPLE 	1 LOAD SAMPLE 	1 LOAD SAMPLE 
4 WASH IMPURITIES 	2 WASH IMPURITIES 	
5 ELUTE ANALYTES 	3 ELUTE ANALYTES 	2 RINSE 

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



Comparison of Removal of Phospholipids from Plasma



Lyso 1: 1 Palmitoyl 2 OH sn glycero phosphocholine, (16:0)

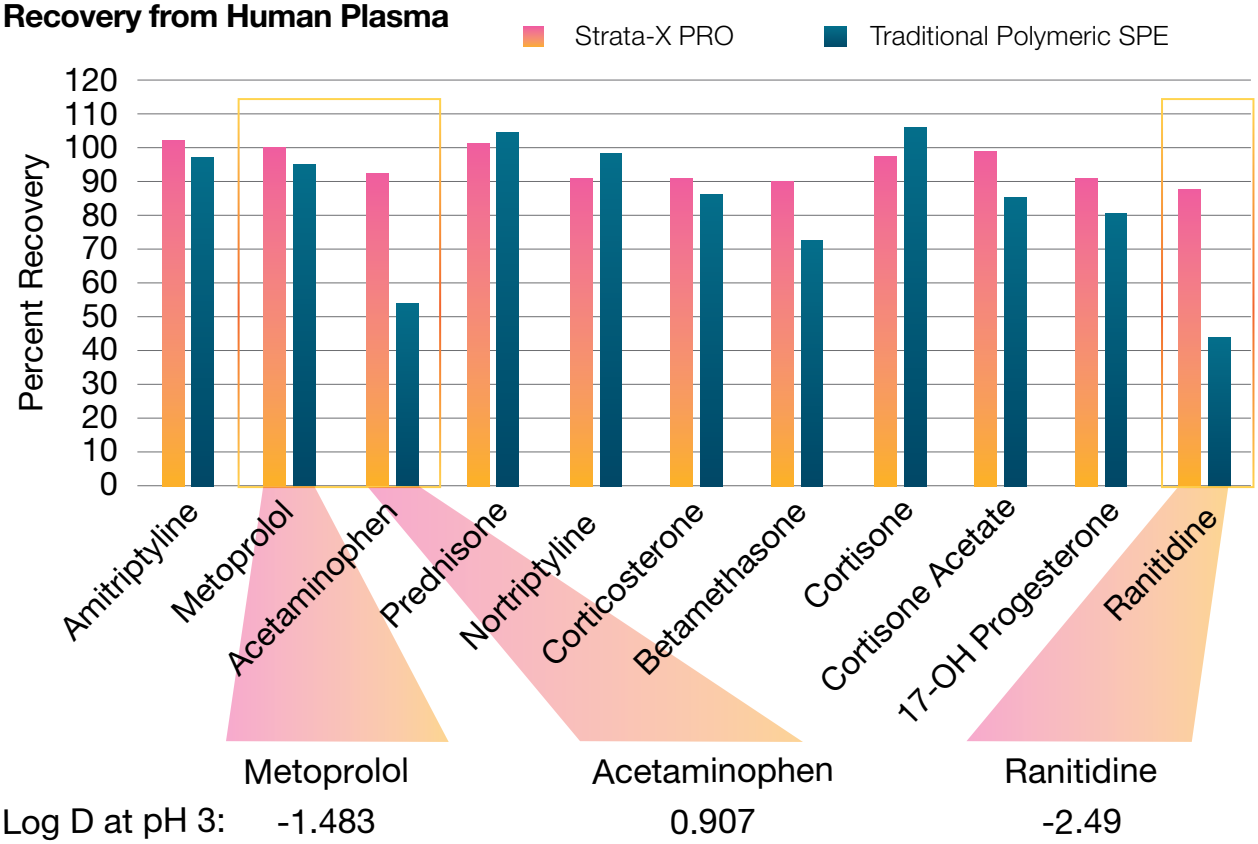
Lyso 2: 1 Oleoyl 2 OH sn glycero phosphocholine, (18:1) m

PC 1: 1 Palmitoyl 2 Oleoyl sn glycerol phosphocholine, (16:0, 18:1)

PC 2: 1 Stearoyl 2 Lindoleoyl sn glycerol phosphocholine, (18:0, 18:2)

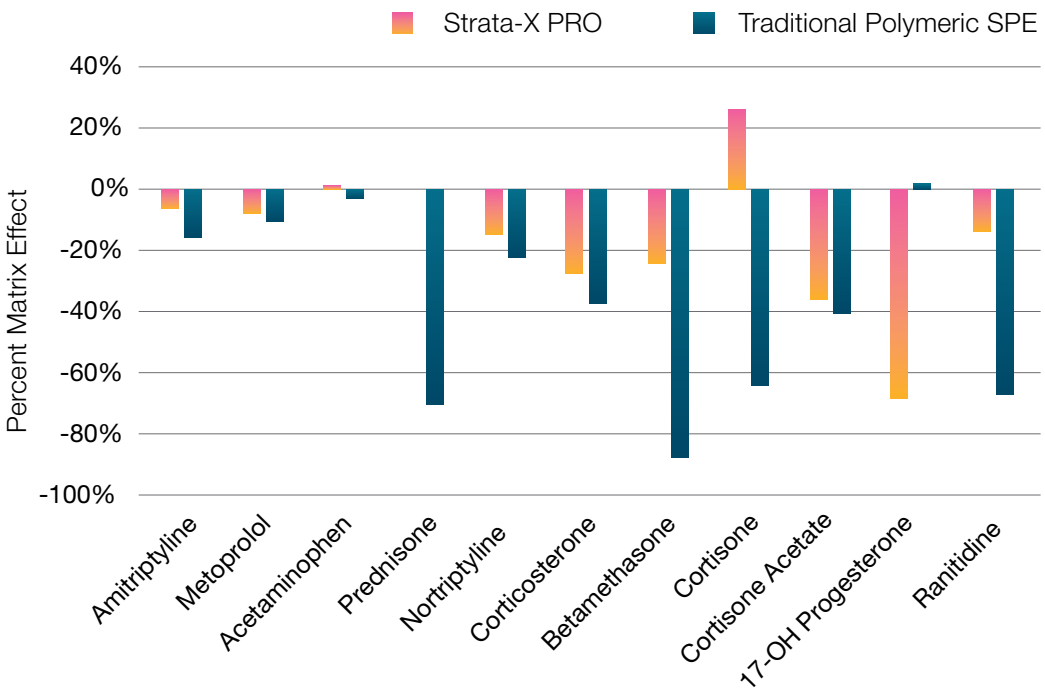
PC 4: 1 Oleoyl 2 Lindoleoyl sn glycerol phosphocholine, (18:1, 18:2)

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
Tube			
	10 mg	8B-S536-AAK	1 mL (100/box)
	30 mg	8B-S536-TAK	1 mL (100/box)
	30 mg	8B-S536-TBJ	3 mL (50/box)
	60 mg	8B-S536-UBJ	3 mL (50/box)
	200 mg	8B-S536-FBJ	3 mL (50/box)
	100 mg	8B-S536-ECH	6 mL (30/box)
	200 mg	8B-S536-FCH	6 mL (30/box)
	500 mg	8B-S536-HCH	6 mL (30/box)
96-Well Plate			
	10 mg/well	8E-S536-AGA	ea
	30 mg/well	8E-S536-TGA	ea
	60 mg/well	8E-S536-UGA	ea
96-Well Microelution Plate			
	2 mg/well	8M-S536-4GA	ea

Accessories

Part No.	Description	Unit
Collection Plates (deep well, polypropylene)		
AH0-7192	96-Well Collection Plate 350 µL/well	50/pk
AH0-7193	96-Well Collection Plate 1 mL/well	50/pk
AH0-7194	96-Well Collection Plate 2 mL/well	50/pk
AH0-8635	96-Well Collection Plate, 2 mL Square/Round-Conical	50/pk
AH0-8636	96-Well Collection Plate, 2 mL Round/Round, 8 mm	50/pk
AH1-7025	96-Well Collection Plate, 1 mL/well Round, 7 mm	50/pk
AH0-9332	96-Well Collection Plate, 1.2 mL/well Round Well Round Bottom	50/pk
AH0-9333	96-Well Collection Plate, 0.5 mL/well V-Bottom, 7 mm Sterile	50/pk
AH0-9341	96-Well Collection Plate, 0.5 mL/well Conical Bottom 7 mm	50/pk
AH1-7036	96-Well Low-Bind Collection Plate, 2 mL/well Round Well Conical Bottom (glass lined)	120/pk
Sealing Mats		
AH0-8597	Sealing Mats, Pierceable, 96-Square Well, Silicone	50/pk
AH0-8598	Sealing Mats, Pre-Slit, 96-Square Well, Silicone	50/pk
AH0-8631	Sealing Mats, Pierceable, 96-Round Well 7 mm, Silicone	50/pk
AH0-8632	Sealing Mats, Pre-Slit, 96-Round Well 7 mm, Silicone	50/pk
AH0-8633	Sealing Mats, Pierceable, 96-Round Well 8 mm, Silicone	50/pk
AH0-8634	Sealing Mats, Pre-Slit, 96-Round Well 8 mm, Silicone	50/pk
AH0-7362	Sealing Tape Pad	10/pk
Vacuum Manifolds		
VM12	SPE 12-Position Vacuum Manifold Set, for tubes	ea
VM24	SPE 24-Position Vacuum Manifold Set, for tubes	ea
AH0-8950	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.

SPE Tubes Ordering Info

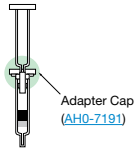
Process Multiple Samples at Once

Tubes	Positive Pressure Manifold	Vacuum Manifold
		

OR OR

Process Samples Manually

Syringe + Adapter Cap



Strata Silica-Based Sorbents

Tubes	1 mL (100/box)		3 mL (50/box)			6 mL (30/box)		
Phase	**50 mg**	**100 mg**	**100 mg**	**200 mg**	**500 mg**	**200 mg**	**500 mg**	**1 g**
C18-E	8B-S001-DAK	8B-S001-EAK	8B-S001-EBJ	8B-S001-FBJ	8B-S001-HBJ	8B-S001-FCH	8B-S001-HCH	8B-S001-JCH
C18-U	—	8B-S002-EAK	—	8B-S002-FBJ	8B-S002-HBJ	—	8B-S002-HCH	8B-S002-JCH
C18-T	—	8B-S004-EAK	—	8B-S004-FBJ	8B-S004-HBJ	—	8B-S004-HCH	8B-S004-JCH
C8	—	8B-S005-EAK	—	8B-S005-FBJ	8B-S005-HBJ	—	8B-S005-HCH	8B-S005-JCH
Phenyl	—	8B-S006-EAK	—	8B-S006-FBJ	8B-S006-HBJ	—	8B-S006-HCH	8B-S006-JCH
SCX	—	8B-S010-EAK	8B-S010-EBJ	8B-S010-FBJ	8B-S010-HBJ	—	8B-S010-HCH	8B-S010-JCH
WCX	—	8B-S027-EAK	—	8B-S027-FBJ	8B-S027-HBJ	—	8B-S027-HCH	8B-S027-JCH
SAX	—	8B-S008-EAK	8B-S008-EBJ	8B-S008-FBJ	8B-S008-HBJ	—	8B-S008-HCH	8B-S008-JCH
NH_2	—	8B-S009-EAK	—	8B-S009-FBJ	8B-S009-HBJ	—	8B-S009-HCH	8B-S009-JCH
CN	—	8B-S007-EAK	—	8B-S007-FBJ	8B-S007-HBJ	—	8B-S007-HCH	8B-S007-JCH
Si-1	—	8B-S012-EAK	—	8B-S012-FBJ	8B-S012-HBJ	—	8B-S012-HCH	8B-S012-JCH
Florisil®	—	—	—	—	8B-S013-HBJ	—	8B-S013-HCH	8B-S013-JCH
EPH	—	—	—	—	8B-S031-HBJ	—	—	—
AL-N	—	—	—	—	8B-S313-HBJ	—	—	8B-S313-JCH
PFAS	—	—	—	—	—	CS0-9207	CS0-9208	—
GCB	—	—	—	—	—	8B-S528-FCH	8B-S528-HCH	—

Mixed-mode sorbents (for drugs of abuse)

Tubes	1 mL (100/box)		3 mL (50/box)			6 mL (30/box)		
Phase	**—**	**100 mg**	**100 mg**	**150 mg**	**200 mg**	**200 mg**	**500 mg**	**—**
Screen-C	—	8B-S016-EAK	8B-S016-EBJ	8B-S016-SBJ	8B-S016-FBJ	8B-S016-FCH	8B-S016-HCH	—
Screen-A	—	8B-S019-EAK	—	—	8B-S019-FBJ	8B-S019-FCH	8B-S019-HCH	—

Polymeric sorbents

Tubes	1 mL (100/box)		3 mL (50/box)			6 mL (30/box)		
Phase	**50 mg**	**100 mg**	**—**	**200 mg**	**500 mg**	**200 mg**	**500 mg**	**1 g**
SDB-L	8B-S014-DAK	8B-S014-EAK	—	8B-S014-FBJ	8B-S014-HBJ	8B-S014-FCH	8B-S014-HCH	8B-S014-JCH

Strata-X Polymer-Based Sorbents

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

Accessories For Tubes

Adapter Caps		
Part No.	**Description**	**Unit**
AH0-7191	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	00M-S039-B0-CB
Strata C8	20 x 2.0 mm	00M-S101-B0-CB
Strata-X	20 x 2.0 mm	00M-S033-B0-CB
Strata-X-A	20 x 2.0 mm	00M-S132-B0-CB
Strata-X-AW	20 x 2.0 mm	00M-S038-B0-CB
Strata-X-C	20 x 2.0 mm	00M-S048-B0-CB
Strata-X-CW	20 x 2.0 mm	00M-S036-B0-CB
Cartridge Holder	20 mm	CH0-5845

96-Well Plate Ordering Information

SPE 96-Well Plates

Process Samples with a Vacuum Manifold

96-Well Plate		Positive Pressure Manifold		96-Well Plate Manifold
	+		OR	

Process Samples with a Robot

Robot


Strata-X Polymer-Based Sorbents

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

Strata-X Microelution Plates

96-Well Plates (ea)	
Phase	2 mg
Strata-X-AW	8M-S038-4GA
Strata-X-A	8M-S123-4GA
Strata-X	8M-S100-4GA
Strata-X-C	8M-S029-4GA
Strata-X-CW	8M-S035-4GA

Round Well Collection Plates (polypropylene)

Part No.	Well Bottom	Well Volume	Unit	Suggested Sealing Mats
AH0-7279	Round	1 mL	50/pk	AH0-8631 AH0-8632
AH0-8636	Round	2 mL	50/pk	AH0-8633 AH0-8634

Collection Plates*

Part No.	Description	Unit
AH0-7192	350 µL/well 96-Square Well Conical V-bottom Collection Plate	50/pk
AH0-7193	1 mL/well 96-Square Well Conical V-bottom Collection Plate	50/pk
AH1-7025	1 mL/well 96-Round Well Round Bottom 7 mm Collection Plate	50/pk
AH0-7194	2 mL/well 96-Square Well Conical V-bottom Collection Plate	50/pk
AH0-8636	2 mL/well 96-Round Well Round Bottom 8 mm Collection Plate	50/pk
AH0-9332	1.2 mL/well 96-Round Well Round Bottom Collection Plate	50/pk
AH0-9333	0.5 mL/well 96-Round Well V-Bottom, 7 mm Collection Plate, Sterile	50/pk
AH0-9341	0.5 mL/well 96-Round Well Conical Bottom 7 mm Collection Plate	50/pk
AH1-7036	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	8E-S001-CGB	8E-S001-DGB	8E-S001-EGB
C18-U	—	8E-S002-DGB	8E-S002-EGB
C18-T	8E-S004-CGB	8E-S004-DGB	—
C8	8E-S005-CGB	—	—
Phenyl	8E-S006-CGB	—	8E-S006-EGB
Silica	—	8E-S012-DGB	8E-S012-EGB
NH_2	8E-S009-CGB	8E-S009-DGB	8E-S009-EGB
SAX	8E-S008-CGB	8E-S008-DGB	8E-S008-EGB
SCX	8E-S010-CGB	8E-S010-DGB	8E-S010-EGB
WCX	8E-S027-CGB	8E-S027-DGB	—
Screen-C	—	8E-S016-DGB	8E-S016-EGB
SDB-L	—	8E-S014-DGB	—

Round Well Sealing Mats

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

Square Well Sealing Mats

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

Strata Activated Carbon

Part No.	Description	Unit
CS0-9209	2g/6mL	30/pk
CS0-9210	400mg/Pass Through cartridge	50/pk

Strata GCB

Part No.	Description	Unit
8B-S528-CAJ	25mg/1mL Pass Through Cartridge	50/pk
8B-S528-FCH	250mg/6mL	30/pk
8B-S528-HCH	500mg/6mL	30/pk

Strata PFAS SPE (WAX/GCB)

Part No.	Description	Unit
CS0-9207	200mg/50mg/6mL	30/pk
CS0-9208	500mg/50mg/6mL	200/Pk
CS0-9208-S	500mg/50mg/6mL	30/Pk

SPE Clean-up for Biologics

Bioligical 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	8M-S009-NGA	1/box	$ 310

Clarity™

Rapid Isolation of Oligo Therapeutics from Biological Samples

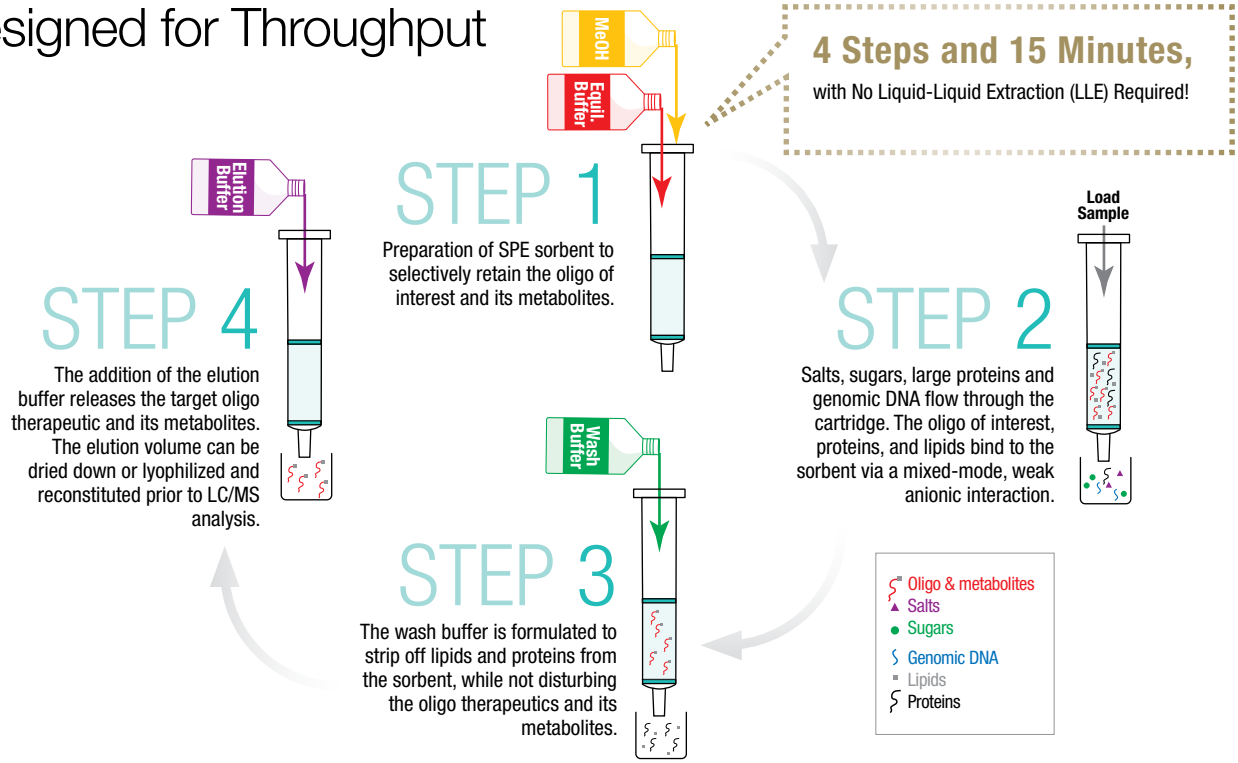
- > 80 % typical extraction recoveries
- No liquid-liquid extraction (LLE) required
- Suitable for a majority of therapeutic oligos, tissues, and fluids
- Optimized for LC-MS bioanalysis
- Can be automated for high-throughput

	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 to1 µmol
Oligo Types	DNA, RNA/RNAi, Thioates, Dye-labled, Modified			

Characterization / Analysis

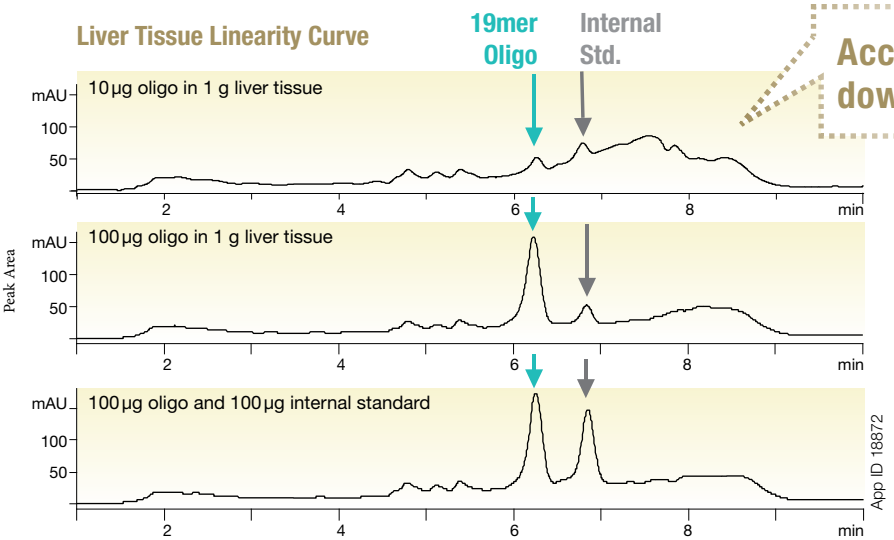
	Clarity Oligo-RP™	Clarity Oligo-MS™ Clarity Oligo-XT	Clarity Oligo-OTX™
Primary Use	RP-LC-MS analysis with optimized selectivity and sensitivity	Rapid, high efficiency RP-LC-MS analysis for QC and characterization	Extraction of oligo therapeutics from biological samples for LC-MS bioanalysis
Oligo Length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

Designed for Throughput



4 Steps and 15 Minutes,
with No Liquid-Liquid Extraction (LLE) Required!

Detect Low Dosage Levels



Accurately detect down to 10 µg

Ordering Information

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

Part No.	Description		Unit
KS0-8494	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
KS0-9253	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
8M-S103-4GA	Clarity OTX Microelution Well Plate	2 mg/ well	1/box
8E-S103-CGA	Clarity OTX Well Plate	25 mg/ well	1/box
8E-S103-EGA	Clarity OTX Well Plate	100 mg/ well	1/box
8B-S103-EBJ	Clarity OTX Cartridge	100 mg/3 mL	50/box
8B-S103-HCH	Clarity OTX Cartridge	500 mg/6 mL	30/box
AL0-8579	Clarity OTX Lysis-Loading Buffer V2.0	1 L	ea

DMT On (Trityl On)

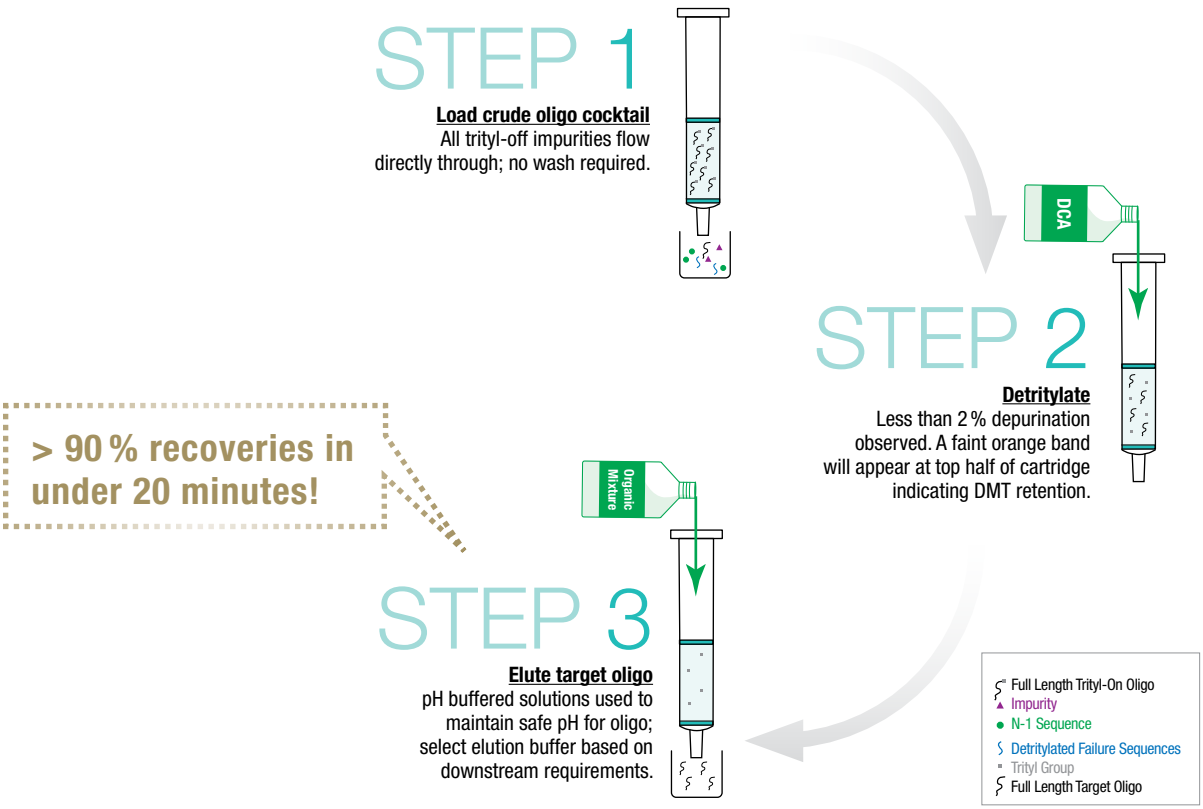
Clarity QSP

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
Formats			
8E-S102-DGB	Clarity QSP Well Plate	50 mg/well	1/box
8B-S102-UBJ	Clarity QSP Cartridge	60 mg/3 mL	50/box
8B-S102-SBJ	Clarity QSP Cartridge	150 mg/3 mL	50/box
8B-S042-LFF	Clarity QSP Cartridge	5 g/60 mL	16/box
Buffers*			
AL0-8280	Clarity QSP DNA Loading Buffer	1 L	ea
AL0-8282	Clarity QSP RNA-TBDMS Loading Buffer	1 L	ea

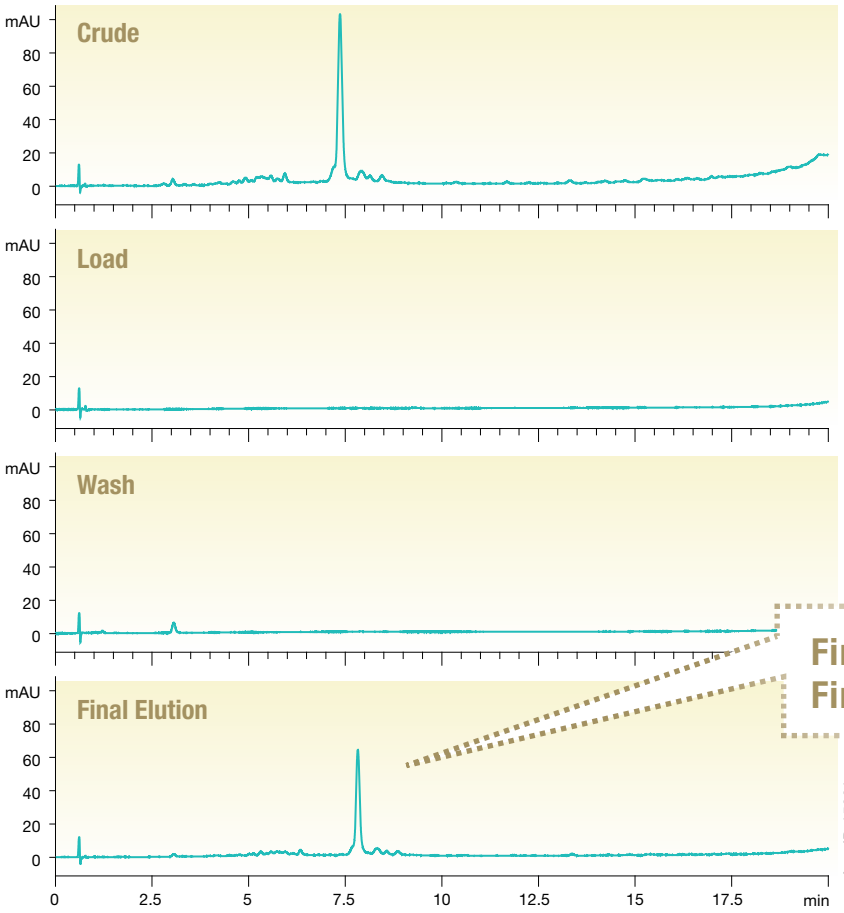
* RNA-TOM loading buffer available upon request

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



Column: Clarity 3 µm Oligo-RP C18
Dimensions: 50 x 4.6 mm
Part No.: 00B-4441-E0
Mobile Phase: A: 50 mM TEAA, pH 7.5 / 5 % Acetonitrile
B: Methanol
Gradient: A/B (90:10) to A/B (40:60) in 20 min
Flow Rate: 1 mL/ min
Detection: UV @ 260 nm
Sample: 25nt DNA oligonucleotide

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**
Phase	50/box	50/box
Clarity RP Desalting	8B-S041-FBJ	8B-S041-HBJ

96-Well Plates*		
Part No.	Description	Unit
8E-S041-SGA	Clarity RP Desalting 150 mg/well	ea

* For 200 µmole synthesis

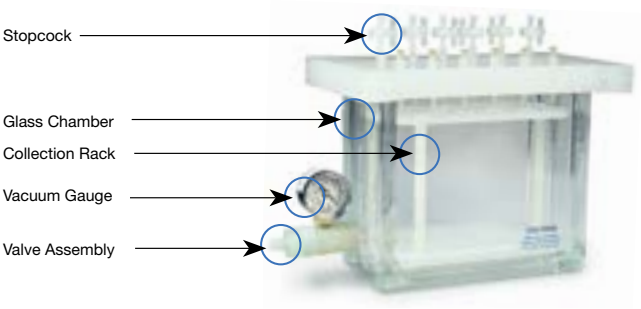
** For 1 µmole synthesis

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
24 – Position Vacuum Manifold*[3]		
VM24	SPE 24-Position Vacuum Manifold Set, complete assembly	ea
24 – Position Vacuum Manifold Replacement Parts		
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
12 - Position Vacuum Manifold*[2]		
VM12	SPE 12-Position Vacuum Manifold Set, complete assembly	ea
12 – Position Vacuum Manifold Replacement Parts		
A80106	SPE Gasket	ea
A81216	SPE Collection Rack Assembly, including plates, legs and clips[2]	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
96-Well Plate Manifold**		
AH0-8950	96-Well Plate Manifold, Universal w/vacuum gauge	ea
Replacement Parts		
Part No.	**Description**	**Unit**
AH0-7285	96-Well Plate Manifold Replacement Gasket, Flat (to fit between acrylic chamber and 96-well plate), black	ea
AH0-7198	96-Well Plate Manifold Replacement Gasket, Profile, (to fit between acrylic chamber and manifold base), white	ea
AH0-8637	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.

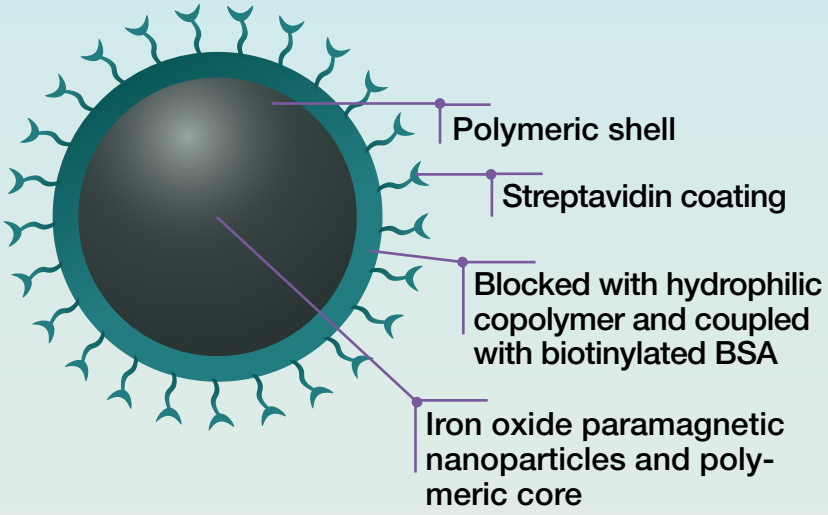
Part No.	Description	Unit
General Vacuum Manifold Accessories		
A80215	Adapter Caps for 1, 3 and 6 mL SPE tubes, polyethylene, with Luer tip	12/pk
A80100	SPE Manifold Needles, polypropylene	12/pk
A80102	SPE Manifold Needles, stainless steel	12/pk
A80104	Female Luer Fittings	1/pk
A80105	Male Luer Fittings	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

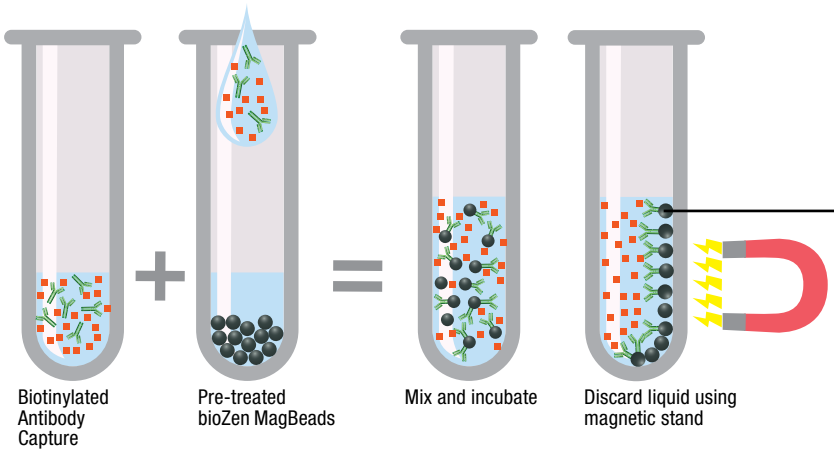
Uniform magnetic bead particles for isolating and cleaning up proteins and peptides.

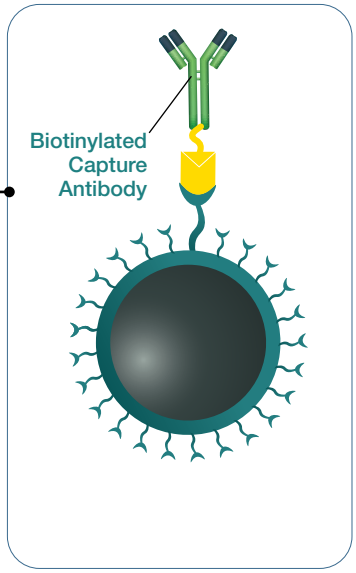
- Non-saturated, accurate binding surface orientation
- Blocked with copolymer and hydrophilic coupled with biotinylated BSA which:
  - Properly orients capture antibody
  - Prevents surface crowding and ligand inactivation through non-specific binding
  - Enhances dispersion of particles
  - Improves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

www.phenomenex.com/BiozenSP

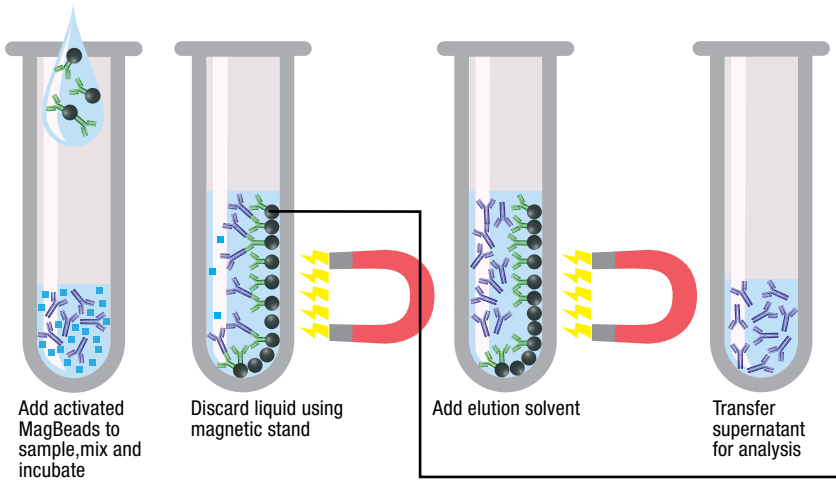


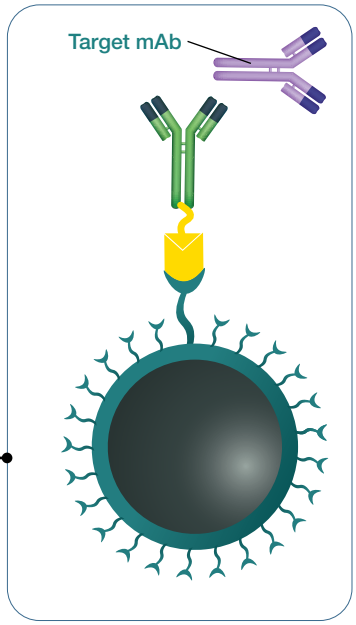
MagBead Activation





Immunocapture





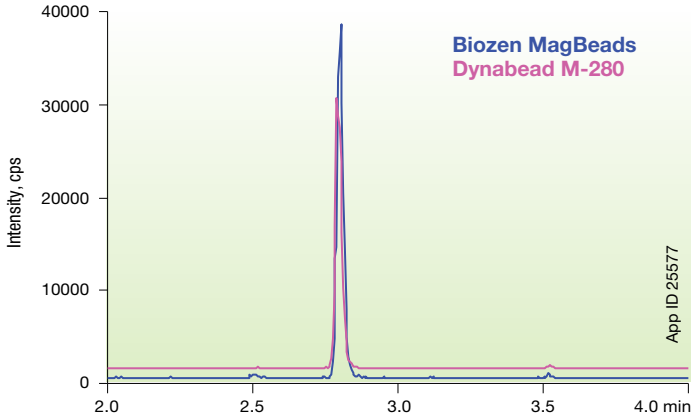
MagBead Specifications

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

Learn how to use Biozen MagBeads at www.phenomenex.com/BiozenSP

Response of MagBead Clean-Up

Comparison of Dynabeads M-280 vs. Biozen MagBeads



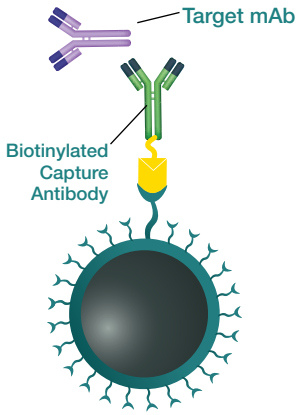
Biozen MagBeads offer improved recovery and provides greater accuracy for the peptide quantitation.

Column: Biozen 3 µm 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)	KS0-9531	20 mg/mL	1.0 µm
50 mg (≈100 samples)	KS0-9532		
500 mg (≈1000 samples)	KS0-9533		



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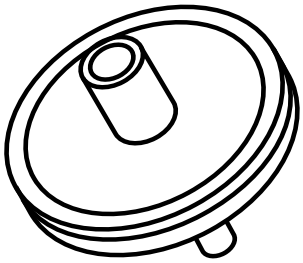
Sample Preparation Tools and Resources

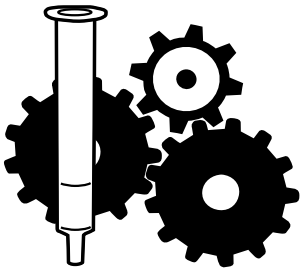
Search Hundreds of Applications



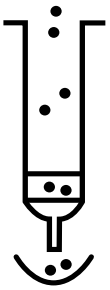
Syringe Filter Finder Tool

Sample Preparation Support at Your Fingertips

www.phenomenex.com/sampleprep



SPE Method Development Tool



Sample Preparation Basics Overview

SAMPLE PREPARATION
MADE SIMPLE
Selection and Users Guide

Australia
t: +61 (0)2-9428-6444
auinfo@phenomenex.com

Austria
t: +43 (0)1-319-1301
anfrage@phenomenex.com

Belgium
t: +32 (0)2 503 4015 (French)
t: +32 (0)2 511 8666 (Dutch)
beinfo@phenomenex.com

Canada
t: +1 (800) 543-3681
info@phenomenex.com

China
t: +86 400-606-8099
cninfo@phenomenex.com

Czech Republic
t: +420 272 017 077
cz-info@phenomenex.com

Denmark
t: +45 4824 8048
nordicinfo@phenomenex.com

Finland
t: +358 (0)9 4789 0063
nordicinfo@phenomenex.com

France
t: +33 (0)1 30 09 21 10
franceinfo@phenomenex.com

Germany
t: +49 (0)6021-58830-0
anfrage@phenomenex.com

Hong Kong
t: +852 6012 8162
hkinfo@phenomenex.com

India
t: +91 (0)40-3012 2400
indiainfo@phenomenex.com

Indonesia
t: +62 21 5010 9707
indoinfo@phenomenex.com

Ireland
t: +353 (0)1 247 5405
eireinfo@phenomenex.com

Italy
t: +39 051 6327511
italiainfo@phenomenex.com

Japan
t: +81 (0) 120-149-262
jpinfo@phenomenex.com

Luxembourg
t: +31 (0)30-2418700
nlinfo@phenomenex.com

Mexico
t: 01-800-844-5226
tecnicomx@phenomenex.com

The Netherlands
t: +31 (0)30-2418700
nlinfo@phenomenex.com

New Zealand
t: +64 (0)9-4780951
nzinfo@phenomenex.com

Norway
t: +47 810 02 005
nordicinfo@phenomenex.com

Poland
t: +48 22 104 21 72
pl-info@phenomenex.com

Portugal
t: +351 221 450 488
ptinfo@phenomenex.com

Singapore
t: +65 800-852-3944
sginfo@phenomenex.com

Slovakia
t: +420 272 017 077
sk-info@phenomenex.com

Spain
t: +34 91-413-8613
espinfo@phenomenex.com

Sweden
t: +46 (0)8 611 6950
nordicinfo@phenomenex.com

Switzerland
t: +41 (0)61 692 20 20
swissinfo@phenomenex.com

Taiwan
t: +886 (0) 0801-49-1246
twinfo@phenomenex.com

Thailand
t: +66 (0) 2 566 0287
thaiinfo@phenomenex.com

United Kingdom
t: +44 (0)1625-501367
ukinfo@phenomenex.com

USA
t: +1 (310) 212-0555
info@phenomenex.com

All other countries/regions
Corporate Office USA
t: +1 (310) 212-0555
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