

Supported Liquid Extraction (SLE)

For Pharmaceutical Applications

Novum™ Synthetic SLE

Unique, Synthetic Sorbent that
Provides Consistent, Reliable Results

Strata® DE Diatomaceous Earth SLE

Cost-Effective, Guaranteed Alternative to
Traditional Diatomaceous Earth SLE Sorbents



phenomenex[®]
...breaking with traditionSM

www.phenomenex.com/PharmaSLE



Choose the Best SLE Solution for Your Analysis

Phenomenex provides two options for your SLE analysis, a unique synthetic sorbent and a traditional diatomaceous earth sorbent, each of which provides its own benefits. Select the best option for your work by using the chart below.



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	200 μL 96-Well Plates, 400 μL 96-Well Plates
1 cc, 3 cc, 6 cc, 12 cc	Tube Formats	12 cc and 60 cc

Need Help Selecting the Right SLE Option?



Call us

or



Live Chat

www.phenomenex.com/LiveChat

Explore Your SLE Options and Applications

Novum™ SLE

A Unique, Synthetic Sorbentp. 4

Strata® Diatomaceous Earth (DE) SLE

A Cost-Effective Alternative to Traditional SLE Sorbentsp. 5

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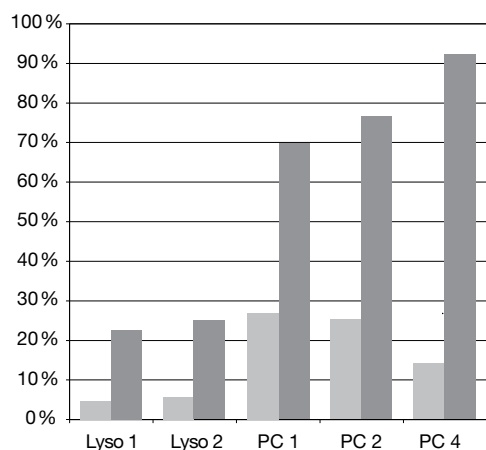
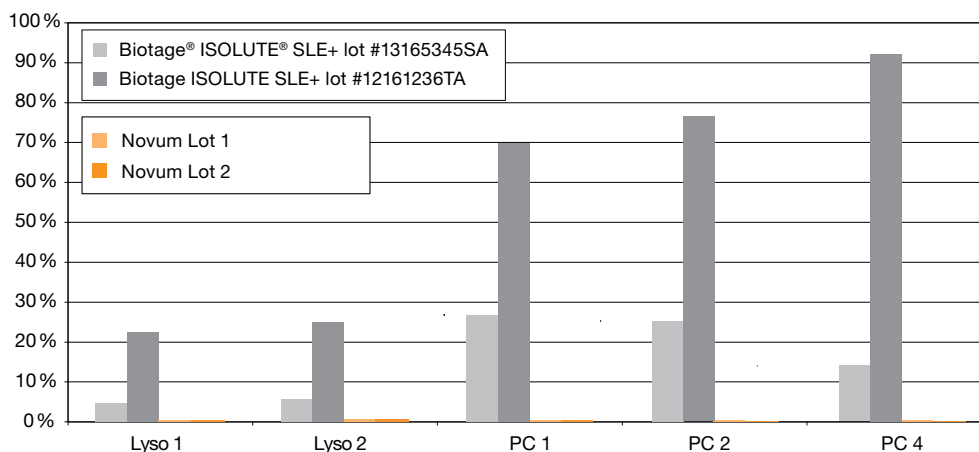
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As a unique, synthetic SLE sorbent, expect Novum to provide reliable, more consistent lot-to-lot cleanup that excels under extraction conditions where traditional diatomaceous earth SLE falls short, such as ethyl acetate.

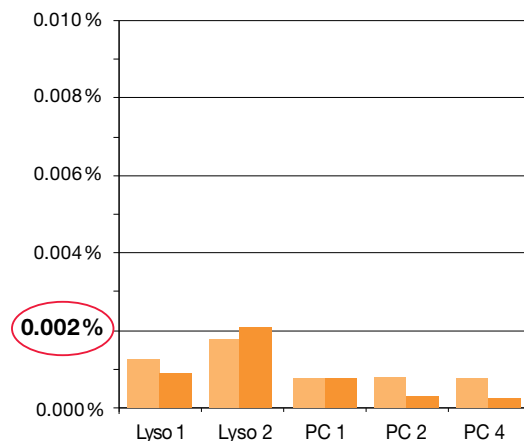
Recommended Uses:

- Ethyl acetate extractions
- Smaller volume samples

Lot-to-Lot Phospholipid Breakthrough: Novum SLE vs. Traditional Diatomaceous Earth SLE



Consistently
remove > 99.9 % of
phospholipids



- Lyso 1: 1-Palmitoyl-2-OH-sn-glycero-phosphocholine (m/z 496-184)
- Lyso 2: 1-Oleoyl-2-OH-sn-glycero-phosphocholine (m/z 522-184)
- PC 1: 1-Palmitoyl-2-Oleoyl-sn-glycero-phosphocholine (m/z 761-184)
- PC 2: 1-Stearoyl-2-Lindoleoyl-sn-glycero-phosphocholine (m/z 787-184)
- PC 4: 1-Oleoyl-2-Lindoleoyl-sn-glycero-phosphocholine (m/z 784-184)

Plasma extractions were performed using 200µL plates and ethyl acetate as an elution solvent. The recommended protocol provided with each product was followed. Comparative separations may not be representative of all applications.

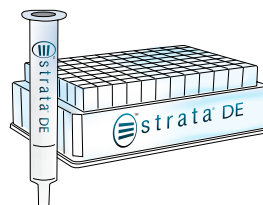
Diatomaceous Earth SLE



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

Recommended Uses:

- Direct alternative to traditional diatomaceous earth SLE sorbents
- Non-oxygenated extraction solvents such as DCM and Hexane



Recovery Values and % CVs: Strata DE SLE 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
Benzoylcegonine	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

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

SLE Protocol

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

Comparative separations may not be representative of all applications.

Basic Drugs from Plasma

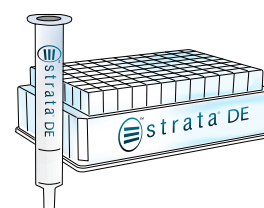
Many drugs within pharmaceutical labs are proprietary, "Basic Drug A" is analyzed as a representative drug that contains an amine group and hydrophobic ring structures, both of which are common to most pharmaceutical drugs.

Sample Pre-treatment

Dilute 150 μL Plasma with 140 μL 2% NH_4OH and 10 μL "Basic Drug A" spiking solution (1 $\mu\text{g}/\text{mL}$)

SLE Protocol

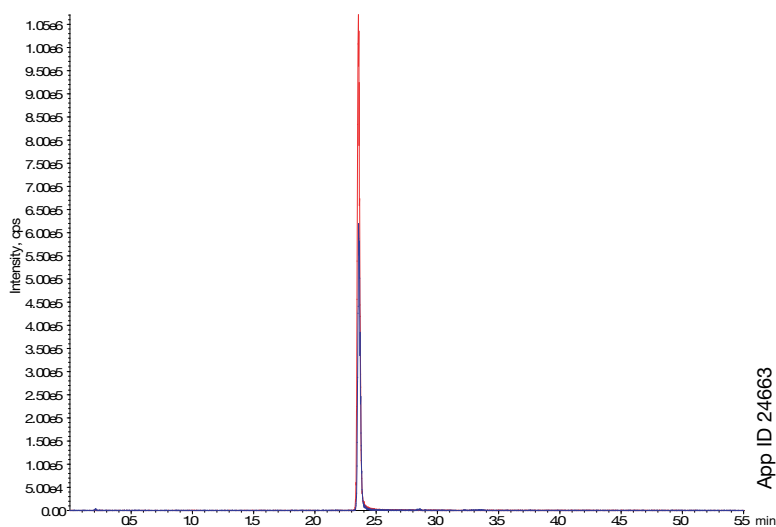
96-Well Plate:	Strata [®] DE 200 μL
Part No.:	8E-S325-FGB
Load:	200 μL Pre-treated sample onto plate (apply vacuum or positive pressure to pull/push sample into sorbent)
Wait:	5 minutes
Elute:	2x 600 μL Heptane
Apply:	Vacuum or apply positive pressure at 5-10" Hg for 10 seconds
Dry:	Sample under slow stream of Nitrogen at 30 $^{\circ}\text{C}$
Reconstitute:	100 μL Methanol/Water (80:20) with internal standard



- Heptane Extraction with High Recovery
- Automatable for High Throughput Processing

Analyte	% Recovery	%CV (n=8)
Basic Drug A	92	6

Extracted Chromatogram After Clean-up Using Strata DE SLE



LC-MS/MS Conditions

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	20
	3	70
	4	70
	4.01	20
	5.5	120

Flow Rate: 0.5 mL/min
Injection Volume: 5 μL
Detection: MS/MS (SCIEX API 4000[™]), ESI+

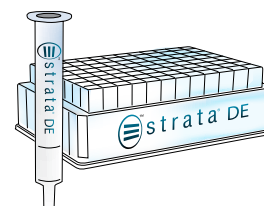
NSAIDs from Urine

Pre-treatment

Dilute 100 μ L of spike urine (100 ng/mL) with 100 μ L of 0.1 % Formic acid.

SLE Protocol

96-Well Plate:	Strata® DE 200 μ L
Part No.:	8E-S325-FGB
Load:	200 μ L Pre-treated sample
Wait:	6 minutes
Elute:	2x 600 μ L Ethyl acetate/Hexane (3:1)
Dry:	Sample under slow stream of Nitrogen at 30 °C
Reconstitute:	100 μ L 0.1 % Formic acid in Methanol with 100 ng/mL concentration of Diclofenac D4, Acetaminophen D7, Naproxen D3



- Small Sample Volume
- High Recovery for NSAIDs
- Cost Effective NSAID Extraction

Recovery Values

	Acetaminophen	Naproxen	Diclofenac
% Recovery	96	84	109
% RSD (n=8)	9	9	5

LC-MS/MS Conditions

Columns: Kinetex® 2.6 μ m C18

Dimensions: 50 x 2.1 mm

Part No.: 00B-4462-AN

Guard Cartridge: SecurityGuard™ ULTRA C18

Part No.: AJ0-8782

Mobile Phase: A: 0.1 % Formic acid in Water

B: 0.1 % Formic acid in Acetonitrile

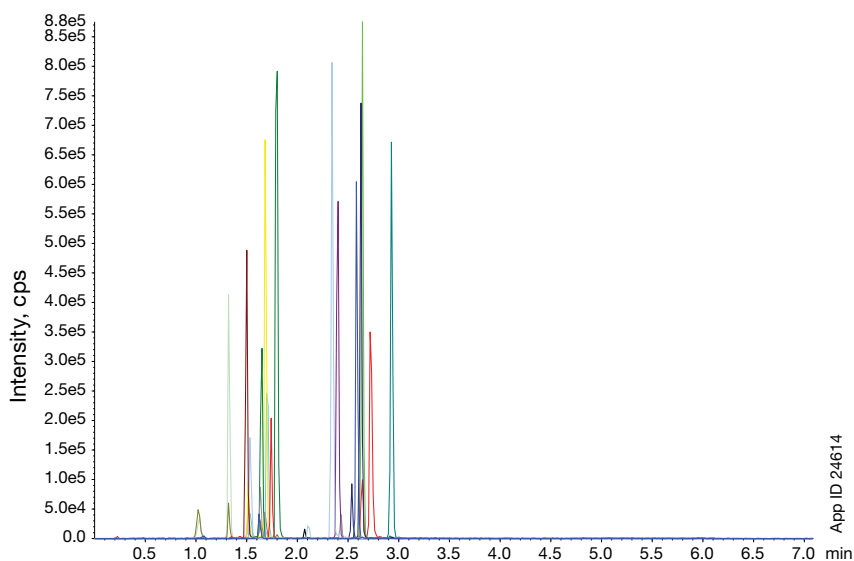
Gradient: Time (min)	% B
0	10
2.5	100
3.5	100
3.51	10

Flow Rate: 0.5 mL/min

Injection: 3 μ L

Detection: MS/MS (SCIEX API 4000™)

TIC for Extracted Sample



App ID 24614

NSAIDs from Plasma

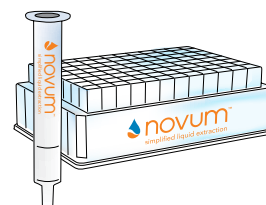
Sample Pre-treatment

Dilute 200 μ L Plasma with 200 μ L of 1 % Formic acid in water. Vortex briefly (3-5 seconds).

SLE Protocol

96-Well Plate:	Novum™ SLE MAX
Part No.:	8E-S138-5GA
Load:	Pre-treated sample and pulse vacuum (~5" Hg) for 5-10 seconds or until sample has completely entered the sorbent
Wait:	5 minutes
Elute:	2x 900 μ L of % Ethyl acetate in Dichloromethane, allow to elute via gravity (~5 minutes per aliquot)
Apply:	Vacuum or apply positive pressure at 5" Hg for 20-30 seconds to complete the elution
Dry:	Sample under slow stream of Nitrogen at 30 °C
Reconstitute:	200 μ L Methanol/Water (10:90) by vortexing the plate at 1400 rpm for 2 minutes

Analyte	% Average Recovery	% CV
Ibuprofen	82	6.70
Diclofenac	79	3.20
Naproxen	96	2.80
Ketoprofen	96	3.10
Mefenamic Acid	77	12.6
Flurbiprofen	82	12.0
Sulindac	87	10.1
Salicylic Acid	93	7.30



- Consistently High Recoveries Using Hexane/Ethyl Acetate (3:1) as Extraction Solvent

To learn more about Novum and Strata® DE SLE products, go to www.phenomenex.com/SLE

Start your new SLE Method

Synthetic SLE



Novum™ SLE 96-Well Plates

Novum Simplified Liquid Extraction 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

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

Diatomaceous Earth SLE



Strata® DE SLE 96-Well Plates

Strata DE Diatomaceous Earth 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

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

guarantee

If Phenomenex SLE products do not perform as well or better than your current SLE product, return the product with comparative data within 45 days for a FULL REFUND.



presston™ 100

Presston 100 Positive Pressure Manifold

Presston 100		
Part No.	Description	Unit
AHO-9334	Presston 100 Positive Pressure Manifold, 96-Well Plate	ea
AHO-9342	Presston 100 Positive Pressure Manifold, 1 mL Tube Complete Assembly	ea
AHO-9347	Presston 100 Positive Pressure Manifold, 3 mL Tube Complete Assembly	ea
AHO-9343	Presston 100 Positive Pressure Manifold, 6 mL Tube Complete Assembly	ea

The Presston 100 96-Well Positive Pressure Manifold can also process 1, 3, and 6 mL tubes using the following adapter kits:

Presston 100 Tube Adapter Kits (for AHO-9334)		
Part No.	Description	Unit
AHO-9344	1 mL Tube Adapter Kit	ea
AHO-9345	3 mL Tube Adapter Kit	ea
AHO-9346	6 mL Tube Adapter Kit	ea



Vacuum Manifolds

Vacuum Manifolds		
Part No.	Description	Unit
AHO-6023	12-Position Tube Vacuum Manifold Set	ea
AHO-6024	24-Position Tube Vacuum Manifold Set	ea
AHO-8950	96-Well Plate Manifold, Universal with Vacuum Gauge	ea



Phenomenex warrants that for a period of 12 months following delivery, the Presston 100 Positive Pressure Manifold you have purchased will perform in accordance with the published specifications and will be free from defects in materials or workmanship. In the event that the Presston 100 Positive Pressure Manifold does not meet this warranty, Phenomenex will repair or replace defective parts. Please visit www.phenomenex.com/Presston for complete warranty information.



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It's OK if you don't have time to develop or run a sample preparation method yourself. Our full-service analytical support laboratory will do it for you.

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Sample Preparation Resources

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Novum is patent pending.

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