



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

# A Unique, Synthetic Sorbent that is Redefining SLE



An Improvement Over  
Biotage<sup>®</sup> Isolute<sup>®</sup> SLE+<sup>\*</sup>

\*Phenomenex is in no way affiliated with Biotage AB.  
Biotage and Isolute are registered trademarks of Biotage AB.

 **phenomenex**<sup>®</sup>  
...breaking with tradition<sup>SM</sup>

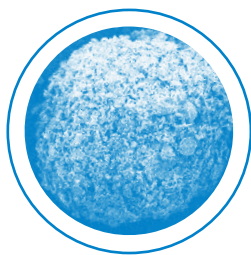


[www.phenomenex.com/Novum](http://www.phenomenex.com/Novum)

# Your Diatomaceous Earth SLE Product Could Use Some Improvements

The material inside your SLE product consists of diatomaceous earth (fossilized diatoms) that is extremely old and unreliable.

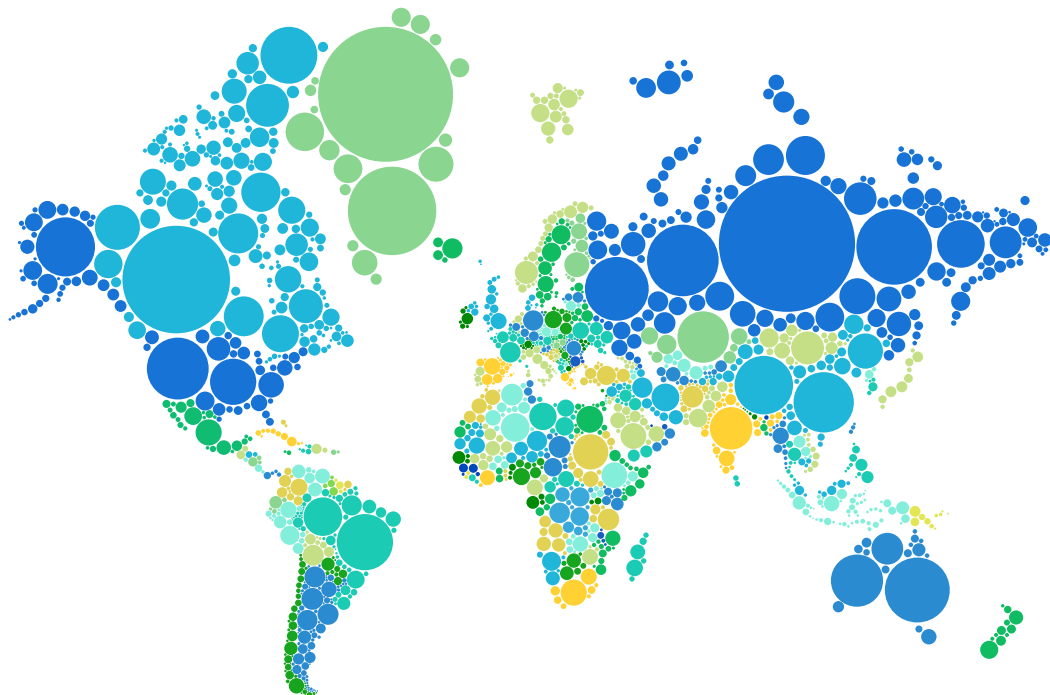
All diatoms are unique, making each of your current SLE products unique and therefore inconsistent.



*1000x zoom of salt water*  
**vs.** *fresh water diatomaceous earth sorbents*



Diatomaceous earth can be found in various mines across the world. Do you know where each batch of your SLE media comes from?



# Redefine Your SLE

*with Novum™ Simplified Liquid Extraction*

Novum SLE (patent pending) eliminates the questions associated with diatomaceous earth. As a lab manufactured sorbent, you can expect reliable, more consistent results.

*Proudly  
manufactured  
at Phenomenex  
Headquarters in  
Torrance, CA USA*





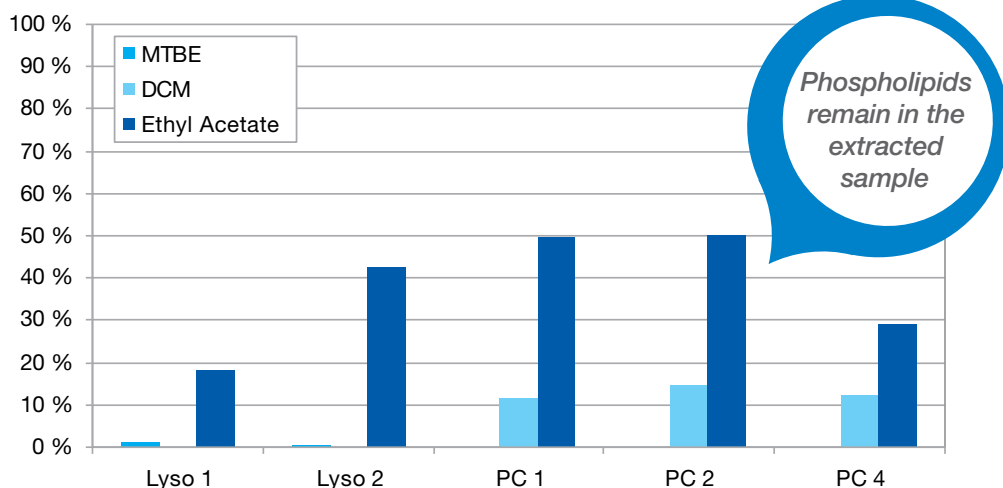
## A Cleaner Extract for Improved LC/MS/MS Analysis

Phospholipids are present in all bioanalytical samples and can cause a variety of issues in LC/MS/MS analysis including ion suppression, reduced column lifetime, and reduced mass spec sensitivity.

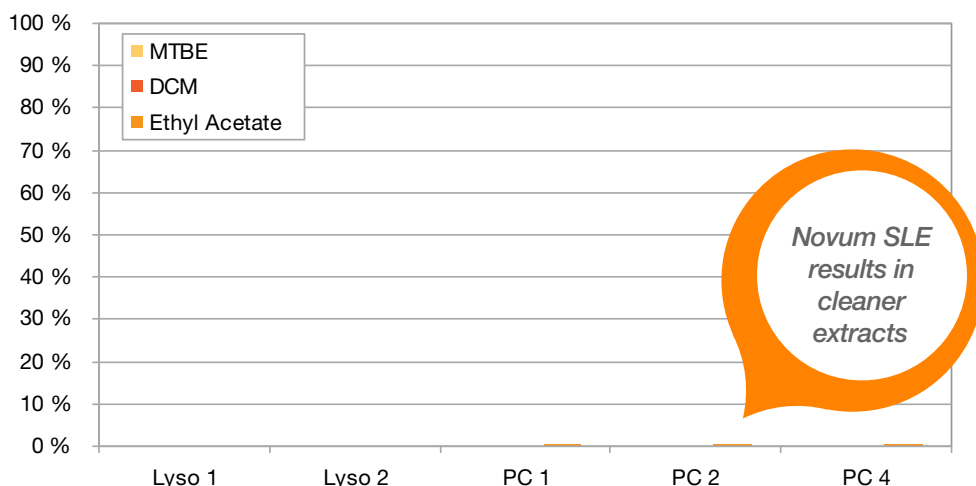
Have you monitored the cleanup ability of your SLE product?

### Phospholipid Breakthrough Using Various Extraction Solvents

#### Biotage® Isololute® SLE+\* (diatomaceous earth)



#### Novum SLE (synthetic SLE sorbent)



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)

**Extraction Method**  
 1. Load diluted plasma (diluted 1:1 with water) onto a 400 µL SLE 96-Well Plate, apply vacuum for 2-5 seconds.  
 2. Allow sample to soak into the SLE sorbent for 5 minutes.  
 3. Elute with ethyl acetate.

Plasma extractions were performed using 400 µL plates. The recommended protocol provided with each product was followed. Comparative separations may not be representative of all applications.

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## Avoid the Risks

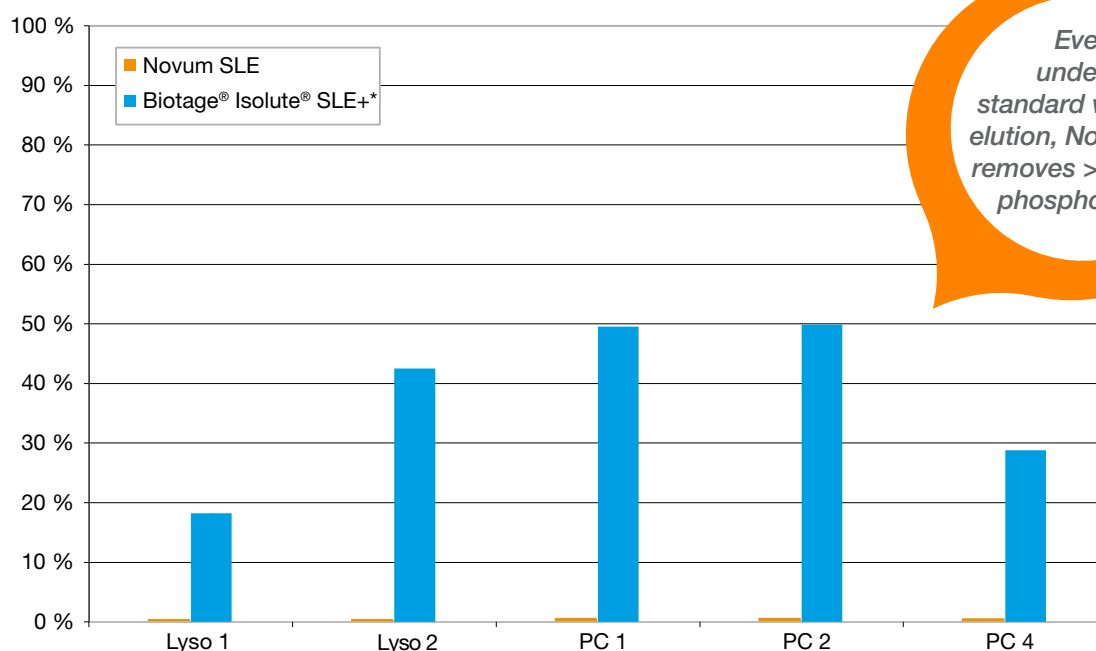
### Associated with Diatomaceous Earth SLE

Applying vacuum to diatomaceous earth SLE sorbents during the elution step could be negatively affecting your results by initiating breakthrough of water and phospholipids. However, skipping the vacuum step during elution can result in lower analyte recoveries because your elution solvent may remain in the SLE sorbent.

Novum SLE will not allow water and phospholipids to breakthrough the sorbent during a standard vacuum step, allowing you to maximize your recovery without affecting your cleanup.

### Phospholipid Breakthrough Using 5" Hg Vacuum

#### Novum SLE vs. Biotage<sup>®</sup> Isolute<sup>®</sup> SLE+\*



Even under a standard vacuum elution, Novum still removes > 99% 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)
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- PC 4: 1-Oleoyl-2-Lindoleoyl-sn-glycero-phosphocholine (m/z 784-184)

#### Extraction Method

1. Load diluted plasma (diluted 1:1 with water) onto a 400  $\mu$ L SLE 96-Well Plate, apply vacuum for 2-5 seconds.
2. Allow sample to soak into the SLE sorbent for 5 minutes.
3. Elute with ethyl acetate.

Plasma extractions were performed using 400  $\mu$ L plates. The recommended protocol provided with each product was followed. Comparative separations may not be representative of all applications.

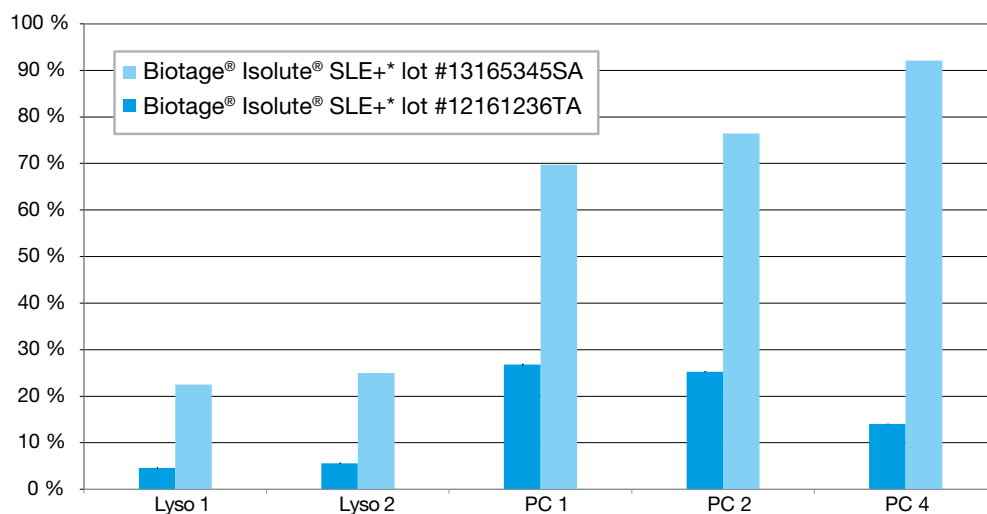
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## More Reliable Cleanup, from Lot-to-Lot

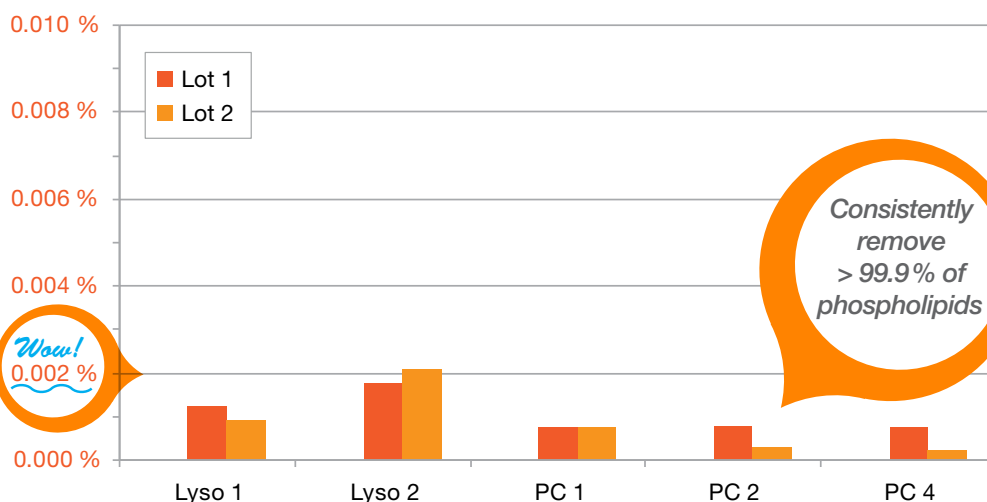
As a naturally occurring product, the composition of diatomaceous earth used in traditional SLE products will vary. This results in inconsistent cleanup of phospholipids.

Novum SLE is a lab manufactured sorbent, ensuring that cleanup and recovery are consistent from lot-to-lot.

### Biotage® Isolute® SLE+\* Lot-to-Lot Phospholipid Breakthrough



### Novum SLE Lot-to-Lot Phospholipid Breakthrough



- 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)
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- 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)

#### Extraction Method

1. Load diluted plasma (diluted 1:1 with water) onto a 200 µL SLE 96-Well Plate, apply vacuum for 2-5 seconds.
2. Allow sample to soak into the SLE sorbent for 5 minutes.
3. Elute with ethyl acetate.

Plasma extractions were performed using 200 µL plates. The recommended protocol provided with each product was followed. Comparative separations may not be representative of all applications.

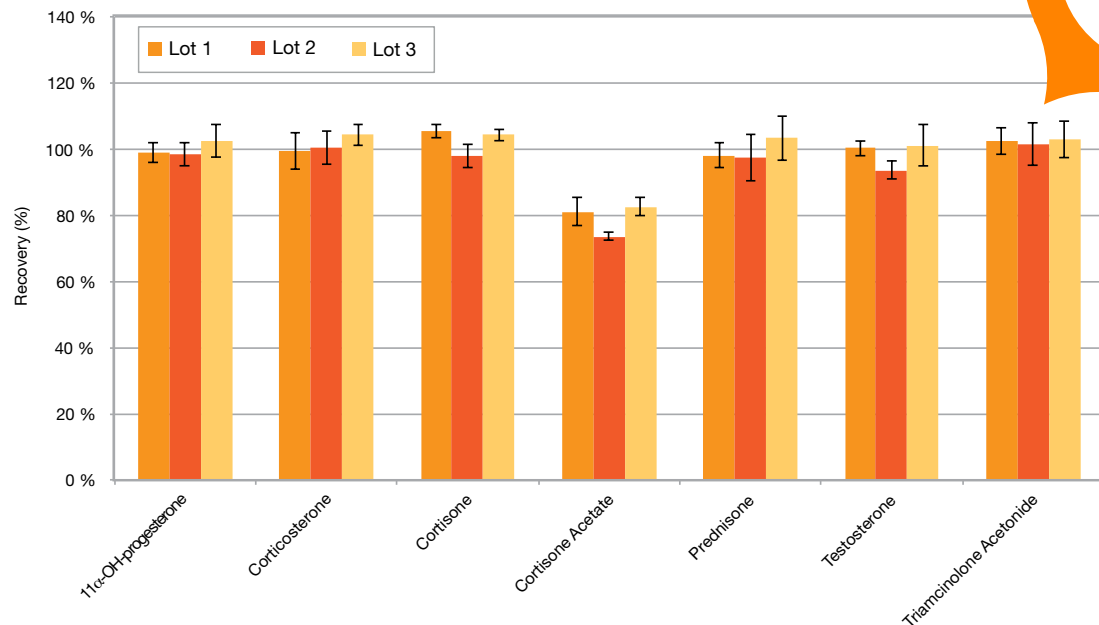
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# Achieve High Recoveries

A more consistent SLE sorbent will result in more consistent analyte recoveries. Consistent manufacturing along with stringent QC tests assure that each lot of Novum™ SLE performs as expected.

## % Recovery of Corticosteroids from Plasma

### Across 3 Different Novum Sorbent Lots



| Analyte                 | % RSD |
|-------------------------|-------|
| 11α-OH-progesterone     | 3.9 % |
| Corticosterone          | 2.5 % |
| Cortisone               | 2.8 % |
| Cortisone Acetate       | 5.8 % |
| Prednisone              | 3.7 % |
| Testosterone            | 5.2 % |
| Triamcinolone Acetonide | 3.4 % |

### Extraction Method

1. Load diluted plasma (diluted 1:1 with 0.5 M Ammonium hydroxide) onto Novum 400µL 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

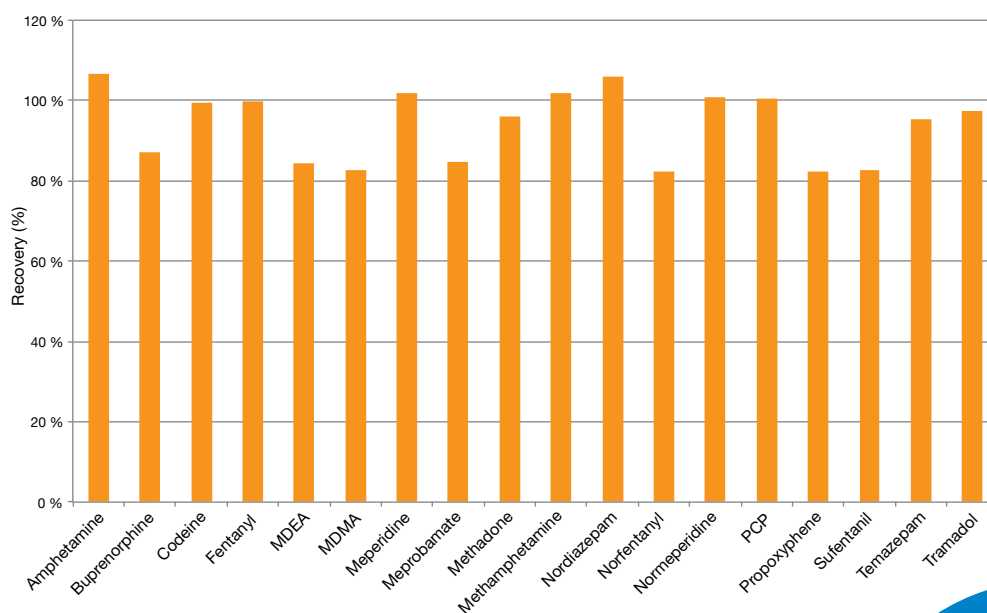
# Faster Method Development

SLE products packed with diatomaceous earth recommend screening several extraction solvents, resulting in a significant amount of method development time.

For typical applications, Novum™ SLE provides excellent recovery and cleanup using ethyl acetate as an extraction solvent, significantly reducing your method development time.

## Recovery of 18 Pain Management Drugs from Urine

using a Single Extraction Method on Novum SLE



| 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%    |

### A Simplified Procedure

#### Extraction Method

1. Load diluted urine (diluted 1:1 with 0.5 M Ammonium hydroxide) onto Novum 400 µL 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

*Don't waste time screening multiple solvents, for typical applications ethyl acetate provides the best balance of cleanup and recovery*



# A Simplified Procedure

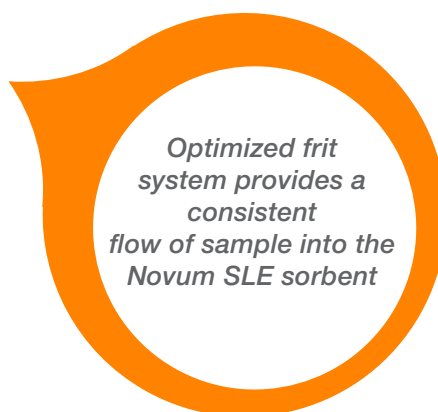
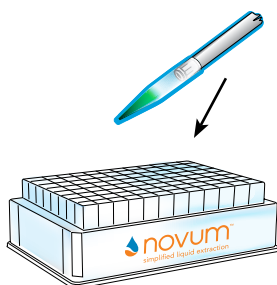
Novum™ SLE follows a simple 3 step procedure, allowing 96 samples to be processed in < 15 minutes. If further time savings are necessary, Novum SLE can be easily automated for rapid, hands free sample cleanup.



## Novum Simplified Liquid Extraction (SLE)

Estimated Time per 96-Well Plate = **<15 minutes**

1. Dilute sample 1:1 with buffer or water and load onto Novum SLE sorbent using 2–15 seconds of vacuum.

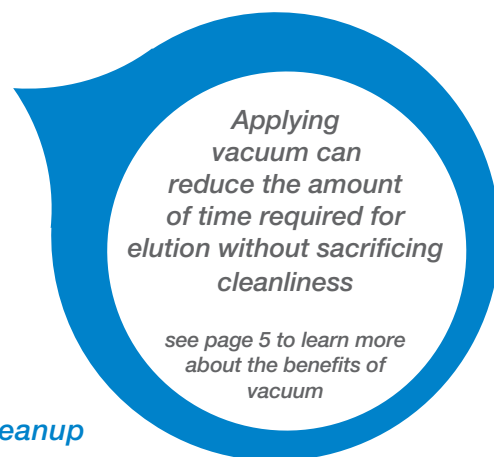


*Optimized frit system provides a consistent flow of sample into the Novum SLE sorbent*

2. Wait 5 minutes.



3. Apply elution solvent and allow to elute via gravity. Complete elution with 10 seconds of vacuum.



*Applying vacuum can reduce the amount of time required for elution without sacrificing cleanliness*

*see page 5 to learn more about the benefits of vacuum*

- *Rapid, automatable method for high throughput cleanup*
- *Stop worrying about analyte loss due to emulsions*

Visit [www.phenomenex.com/Novum](http://www.phenomenex.com/Novum) for buffer and elution solvent recommendations, technical notes, demonstration videos, and more!

# A Reliable Supply of Media

Have you ever wondered what would happen if your supplier's diatomaceous earth mine is exhausted? We have, and it's scary. As a laboratory manufactured sorbent, we can make more Novum™ SLE whenever we want so you don't have to worry.



I truly feel satisfied when I order products from Phenomenex.

Meghan Funkhouser  
*Texas Tech University*



See how Novum SLE can redefine your SLE cleanup  
[www.phenomenex.com/Redefine](http://www.phenomenex.com/Redefine)

# Redefine Your SLE

## Ordering Information

| Novum™ Simplified Liquid Extraction (SLE) |                                |       |       |
|---|--------------------------------|-------|-------|
| Part No.                                  | Description                    | Unit  | Price |
| 8E-S138-FGA                               | Novum SLE 96-Well Plate 200 µL | 1/Box |       |
| 8E-S138-5GA                               | Novum SLE 96-Well Plate 400 µL | 1/Box |       |

## Accessories

### Collection Plates (deep well, polypropylene)

| Part No. | Description   | Unit  | Price |
|----------|---|-------|-------|
| 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 |       |
| AH0-7279 | 96-Well Collection Plate, 1 mL/well Round, 7 mm     | 50/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 Manifold

|          |   |    |  |
|----------|---|----|--|
| AH0-8950 | 96-Well Plate Manifold, Universal with Vacuum Gauge | ea |  |
|----------|---|----|--|



If Novum 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.



For more information about Phenomenex sample preparation products, visit [www.phenomenex.com/sampleprepinfo](http://www.phenomenex.com/sampleprepinfo)

#### Terms and Conditions

Subject to Phenomenex Standard Terms and Conditions, which may be viewed at [www.phenomenex.com/TermsAndConditions](http://www.phenomenex.com/TermsAndConditions).

#### Trademarks

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#### Disclaimer

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