SOLA and SOLAμ SPE method development

Consistent excellence for bioanalysis

SOLAμ well plate

Thermo Scientific™ SOLA™ products are designed for bioanalytical and clinical research analysts who are tasked with providing high-quality analytical results from complex biological samples in a high-throughput environment, while complying with strict legislation. These demands are compounded by the continued push to higher efficacy drugs and long acting formulations which continue to drive sensitive requirements to lower levels to enable accurate quantification.

In order to meet these demands, bioanalytical methods must provide:
- Robustness – low analytical failure rates
- Ability to process low sample volumes
- High-sensitivity
- High-reproducibility
- Ease-of-use
- High-throughput processing
- Efficient and fast processes

The SOLA solid phase extraction (SPE) range meets these demands due to the unique and innovative frit-less SPE technology which eliminates the issues with traditional loose-packed SPE formats (see figure to the right). Combining the support material and active media components into a solid uniform sorbent bed provides stable and controllable flow through characteristics and has an added advantage when dealing with viscous biological samples, as it prevents blocking and enables high throughput processing.

The manufacturing process also allows for high levels of reproducibility, not only from cartridge to cartridge or well to well but also batch to batch. The Thermo Scientific™ SOLA™ SPE range has the added benefit of being able to provide:
- Up to a 20 fold increase in sensitivity
- Ability to process samples restricted in volume
- Increased workflow efficiency and sample integrity

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<table>
<thead>
<tr>
<th>Acidic compounds</th>
<th>Neutral compounds</th>
<th>Basic compounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strong acids</td>
<td>Weak acids</td>
<td>Weak bases</td>
</tr>
<tr>
<td>(pK_a &lt; 2)</td>
<td>(pK_a 2-4)</td>
<td>(pK_a 8-10)</td>
</tr>
<tr>
<td>(pK_a &gt; 10)</td>
<td></td>
<td>(pK_a &gt; 10)</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>SOLA WAX</th>
<th>SOLA SAX</th>
<th>SOLA HRP</th>
<th>SOLA SCX</th>
<th>SOLA WCX</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed-mode weak anion exchange</td>
<td>Mixed-mode strong anion exchange</td>
<td>Reversed-phase</td>
<td>Mixed-mode strong cation exchange</td>
<td>Mixed-mode weak cation exchange</td>
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<tr>
<td>Condition</td>
<td>Equilibrate</td>
<td>Load</td>
<td>Wash 1</td>
<td>Wash 2</td>
</tr>
<tr>
<td>500 µL methanol</td>
<td>500 µL water with 1% ammonium hydroxide</td>
<td>50-500 µL of sample at 1 mL/min</td>
<td>500 µL water with 1% ammonium hydroxide</td>
<td>500 µL water with 1% ammonium hydroxide</td>
</tr>
<tr>
<td>Condition</td>
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<td>Wash 1</td>
<td>Wash 2</td>
</tr>
<tr>
<td>500 µL methanol</td>
<td>500 µL water</td>
<td>50-500 µL of sample at 1 mL/min</td>
<td>500 µL 6% methanol in water</td>
<td>500 µL 6% methanol in water</td>
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</tbody>
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SOLAμ SPE 96 Well Plates

<table>
<thead>
<tr>
<th>Description</th>
<th>Bed weight</th>
<th>Well volume</th>
<th>Cat. no.</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOLAμ HRP</td>
<td>2 mg</td>
<td>1 mL</td>
<td>60209-001</td>
<td>1 each</td>
</tr>
<tr>
<td>SOLAμ SCX</td>
<td>2 mg</td>
<td>1 mL</td>
<td>60209-002</td>
<td>1 each</td>
</tr>
<tr>
<td>SOLAμ SAX</td>
<td>2 mg</td>
<td>1 mL</td>
<td>60209-003</td>
<td>1 each</td>
</tr>
<tr>
<td>SOLAμ WCX</td>
<td>2 mg</td>
<td>1 mL</td>
<td>60209-004</td>
<td>1 each</td>
</tr>
<tr>
<td>SOLAμ WAX</td>
<td>2 mg</td>
<td>1 mL</td>
<td>60209-005</td>
<td>1 each</td>
</tr>
</tbody>
</table>

SOLAμ SPE Cartridges

<table>
<thead>
<tr>
<th>Description</th>
<th>Bed weight</th>
<th>Well volume</th>
<th>Cat. no.</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOLAμ HRP</td>
<td>10 mg</td>
<td>1 mL</td>
<td>60109-001</td>
<td>100 pack</td>
</tr>
<tr>
<td>SOLAμ SCX</td>
<td>10 mg</td>
<td>1 mL</td>
<td>60109-002</td>
<td>100 pack</td>
</tr>
<tr>
<td>SOLAμ SAX</td>
<td>10 mg</td>
<td>1 mL</td>
<td>60109-003</td>
<td>100 pack</td>
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<td>SOLAμ WAX</td>
<td>10 mg</td>
<td>1 mL</td>
<td>60109-005</td>
<td>100 pack</td>
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</tbody>
</table>

Find out more at thermofisher.com/solaspe

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