AttractSPE™ Disks
**AttractSPE™ Disks**

AttractSPE™ Disks are thin and uniform membranes based chromatography for Extraction/separation, purification and concentration of analyte molecules from liquid or air samples. AttractSPE™ Disks are soft membranes which can not only collect analytes but also release them for analysis with an elution step, if necessary.

**AttractSPE™ Disks**

- Broad diversity of chemistry: C18, HLB, SDB-XC, SDB-RPS, Anion and cation exchanges...
- For all needs of automatization 96 well plates, tips, disks
- Diversity of capacity giving high kinetics for all applications

*SPE Particle-loaded membranes with more than 90% Sorbent by weight*
AttractSPE™ Disks

AttractSPE™ Disks Advantages

- It is a thin, soft and mechanically stable membrane
- It has a high exposed surface area of active particles
- This very interesting feature makes the membrane specially designed for many applications of extraction or purification
- Its format makes possible to pass through large volume samples used in environmental analysis or very small volumes used in life science
- The membrane material exists under various formats like disks, cartridges, tips or 96-well plates.

Sorbert particles are tightly enmeshed

Dense particle packing with no void space & uniform particle

Thin membrane, small bed volume

No needs to frits

High separation efficiency

Reduced elution volume

Can extract large volumes
All characteristic properties make AttractSPE™ Disks extremely useful for many applications. Examples: AttractSPE™ membrane formats are used to prepare samples of large volumes used in environmental analysis to very small volumes used in drug discovery.

- Extraction/separation, purification and concentration of analytes from an aqueous sample.
- Sorbent material for passive sampling devices
- Capture of volatile compounds from air
- Design of small-volume protein purification extraction columns (StageTips)
- Layering of different sorbent phases
AttractSPE™ Disks

AttractSPE™ Disks Environment
- Waters analysis
- Compatible to many EPA methods
- Passive samplers
- Contaminants enrichment

AttractSPE™ Disks for Passive Sampling
- Chemcatcher™, POCIS
- Air sampling to identify and quantify health hazards

AttractSPE™ Disks advantages
- Small particles give high sample capacity
- Active sorbent particles retain absorbed compounds during sample
- Collection and store easily
- High extraction recoveries
- Higher stability of compounds stored on disks
- Broad range of sorbents to collect required contaminants

AttractSPE™ Disks for Bio Application

Disks extraction methods
- Urine analysis (Isolate large quantities of metabolites for future studies)
- Plate for clean up of human serum samples for drug and metabolite quantification

Micro elution methods under tips and 96-well plate
- Small elution volumes reduce the need for small elution

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AttractSPE™ Disks Environment have been designed for environmental applications such as high volume loading (including in compliance with EPA methods) or chemcatcher use.

<table>
<thead>
<tr>
<th>Product</th>
<th>Compatible with analytical methods</th>
</tr>
</thead>
<tbody>
<tr>
<td>AttractSPE™ Disks HLB</td>
<td>EPA methods: 532 (Phenylurea compounds), 548 (Endothall), 625 (Acids and Base/Neutrals including PCBs), 8081 (Organochlorine Pesticides), 8082 (PCBs), 8270 (Semivolatile Organic Compounds), 8315 (Carbonyl Compounds), 8318 (N-Methylcarbamates), 8330 (Nitroaromatics &amp; Nitramines) and also Hormons, sex steroids, PAHs, PPCPs, Pharmaceutical compounds, Endocrine disruptors</td>
</tr>
<tr>
<td>AttractSPE™ Disks C18</td>
<td>EPA methods: 506 (Phthalate &amp; Adipate Esters), 507 (Nitrogen- &amp; Phosphorus-Containing Pesticides), 508.1 (Chlorinated Pesticides), 525 (Organic Compounds), 532 (Phenylurea compounds), 548 (Endothall), 550.1 (PAHs), 553.1 (Benzidine &amp; Nitrogen-containing Pesticides), 554 (Carbonyl Compounds &amp; Formaldehyde), 608 (Organochlorine Pesticides), 1613 (Dioxins &amp; Furans), 1614, 1657 (Organophosphorus Pesticides), 1668 (PCBs), 8061 (Phthalate Esters), 8081 (Organochlorine Pesticides), 8082 (PCBs), 8315 (Carbonyl Compounds) and also Bisphenols &amp; Alkyl phenols, PBDEs, Dioxins &amp; Furans, Phthalates, Herbicides, PAHs, Carbaryl, Microcystins</td>
</tr>
<tr>
<td>AttractSPE™ Disks SDB-XC</td>
<td>EPA method 515.2 chlorinated acids</td>
</tr>
<tr>
<td>AttractSPE™ Disks SDB-RPS</td>
<td>Explosives Residues (HDX, RDX)</td>
</tr>
<tr>
<td>AttractSPE™ Disks Anion Exchange - SR</td>
<td>EPA methods: 548.1 Rev. 1 (Endothall), EPA Method 552.1 Rev. 1 (Haloacetic Acids and Dalapon) And also Pesticides, Pharmaceutical compounds and analytes containing carboxylic acid groups</td>
</tr>
<tr>
<td>AttractSPE™ Disks Cation Exchange - SR</td>
<td>Metals, Amines</td>
</tr>
<tr>
<td>AttractSPE™ Disks Oil &amp; Grease</td>
<td>Oil &amp; grease</td>
</tr>
</tbody>
</table>
AttractSPE™ Disks Environment are available with three diameters of membranes: 25mm, 47mm and 90mm.

<table>
<thead>
<tr>
<th>Product name</th>
<th>Ref – Diam 25mm - 40/pk</th>
<th>Ref – Diam 47mm - 20/pk</th>
<th>Ref – Diam 90mm - 10/pk</th>
</tr>
</thead>
<tbody>
<tr>
<td>AttractSPE™ Disks HLB</td>
<td>SPE-Disks-HLB-25.T1.40</td>
<td>SPE-Disks-HLB-47.T1.20</td>
<td>SPE-Disks-HLB-90.T1.10</td>
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<tr>
<td>AttractSPE™ Disks C18</td>
<td>SPE-Disks-C18-25.T1.40</td>
<td>SPE-Disks-C18-47.T1.20</td>
<td>SPE-Disks-C18-90.T1.10</td>
</tr>
<tr>
<td>AttractSPE™ Disks C8</td>
<td>SPE-Disks-C8-25.T1.40</td>
<td>SPE-Disks-C8-47.T1.20</td>
<td>SPE-Disks-C8-90.T1.10</td>
</tr>
<tr>
<td>AttractSPE™ Disks SDB-XC with PS-DVB sorbent</td>
<td>SPE-Disks-DVB-25.T1.40</td>
<td>SPE-Disks-DVB-47.T1.20</td>
<td>SPE-Disks-DVB-90.T1.10</td>
</tr>
<tr>
<td>AttractSPE™ Disks SDB-RPS with modified PS-DVB sorbent</td>
<td>SPE-Disks-RPS-25.T1.40</td>
<td>SPE-Disks-RPS-47.T1.20</td>
<td>SPE-Disks-RPS-90.T1.10</td>
</tr>
<tr>
<td>AttractSPE™ Disks Anion exchange – SR with SAX sorbent</td>
<td>SPE-Disks-AN-25.T1.40</td>
<td>SPE-Disks-AN-47.T1.20</td>
<td>SPE-Disks-AN-90.T1.10</td>
</tr>
<tr>
<td>AttractSPE™ Disks Oil &amp; Grease</td>
<td></td>
<td>SPE-Disks-OIL-47.T1.20</td>
<td>SPE-Disks-OIL-90.T1.10</td>
</tr>
</tbody>
</table>
**AttractSPE™ Disks BioMol applications**
Designed for microextraction used in Stagetips, 96 well columns and miniSPE.

<table>
<thead>
<tr>
<th>Product</th>
<th>Use for</th>
</tr>
</thead>
<tbody>
<tr>
<td>AttractSPE™ Disks Bio - HLB</td>
<td>Fractionation of peptides</td>
</tr>
<tr>
<td>AttractSPE™ Disks Bio - C18</td>
<td>Desalting of peptides; fractionation of peptides at acidic and neutral pH</td>
</tr>
<tr>
<td>AttractSPE™ Disks Bio - C8</td>
<td>Desalting of large peptides and proteins; usage as frit to retain beads in a tip</td>
</tr>
<tr>
<td>AttractSPE™ Disks Bio – C4</td>
<td>Desalting of large peptides and proteins</td>
</tr>
<tr>
<td>AttractSPE™ Disks Bio – SDB - RPS</td>
<td>Desalting and fractionation of peptides</td>
</tr>
<tr>
<td>AttractSPE™ Disks Bio - SAX</td>
<td>Fractionation of peptides by salt or pH steps</td>
</tr>
<tr>
<td>AttractSPE™ Disks Bio - SCX</td>
<td>Fractionation of peptides by salt or pH steps</td>
</tr>
<tr>
<td>AttractSPE™ Disks Bio - SDB</td>
<td>Fractionation of peptides at basic pH</td>
</tr>
</tbody>
</table>

Order on www.affinisep.com
**AttractSPE™ Disks BioMol** are available with two diameters: 25 and 47mm.

<table>
<thead>
<tr>
<th>Product name</th>
<th>Ref – Diam 25mm -40/pk</th>
<th>Ref – Diam 47mm -20/pk</th>
</tr>
</thead>
<tbody>
<tr>
<td>AttractSPE™ Disks Bio HLB</td>
<td>SPE-Disks-Bio-HLB-25.40</td>
<td>SPE-Disks-Bio-HLB-47.20</td>
</tr>
<tr>
<td>AttractSPE™ Disks Bio C18</td>
<td>SPE-Disks-Bio-C18-100. 25.40</td>
<td>SPE-Disks-Bio-C18-100.47.20</td>
</tr>
<tr>
<td>AttractSPE™ Disks Bio - C8</td>
<td>SPE-Disks-Bio-C8-100. 25.40</td>
<td>SPE-Disks-Bio-C8-100.47.20</td>
</tr>
<tr>
<td>AttractSPE™ Disks Bio – C4</td>
<td>SPE-Disks-Bio-C4-300. 25.40</td>
<td>SPE-Disks-Bio-C4-300.47.20</td>
</tr>
</tbody>
</table>
Custom-made Disks

As manufacturer, on demand, we can design and supply under your specifications:

- Multi mode disks
- Various thicknesses
- Different diameters

Any question, please contact us by email: contact@affinisep.com

Visit our website for AttractSPE™ StageTips BioMol

- Spinnable and automatable StageTip (stop-and-go-extraction tips) in shotgun proteomics to clean/desalt peptide samples prior to LC-MS/MS analysis
- Load your sample on AttractSPE™ Tips for desalting or purify peptides and proteins
- Several sorbents based Stage-tips and stacking
Application notes

Determination of Pharmaceuticals in water with AttractSPE™ Disks HLB
PAHs with AttractSPE™ Disks HLB
PAHs with AttractSPE™ Disks C18 – EPA method 550.1 :
Comparison with 3M Empore SPE Disks C18
Multiresidues analysis with AttractSPE™ Disks HLB :
Comparison with competitor SPE Disks HLB
Acid Herbicides with AttractSPE™ Disks HLB
Ionic herbicides with AttractSPE™ Disks Anion exchange SR
Analysis of Seven tetracyclines in water using AttractSPE™ Disks HLB
AttractSPE™ Disks HLB is successfully tested in similar conditions of EPA 1694 and showed recovery yields >80% for most the analytes.

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Blank</th>
<th>Spiked recovery %</th>
<th>Concentration (ng/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penicilin V</td>
<td>0</td>
<td>105</td>
<td>160</td>
</tr>
<tr>
<td>Flucloxacillin</td>
<td>0</td>
<td>105</td>
<td>80</td>
</tr>
<tr>
<td>Sulfathiazole</td>
<td>0</td>
<td>92</td>
<td>16</td>
</tr>
<tr>
<td>Sulfadimethoxine</td>
<td>0</td>
<td>84</td>
<td>16</td>
</tr>
<tr>
<td>Sulfamethazine</td>
<td>0</td>
<td>88</td>
<td>80</td>
</tr>
<tr>
<td>Sulfadiazine</td>
<td>0</td>
<td>95</td>
<td>32</td>
</tr>
<tr>
<td>Caffeine</td>
<td>0</td>
<td>106</td>
<td>80</td>
</tr>
<tr>
<td>Carbamazepine</td>
<td>0</td>
<td>98</td>
<td>16</td>
</tr>
<tr>
<td>4-epitetracycline</td>
<td>0</td>
<td>107</td>
<td>820</td>
</tr>
<tr>
<td>4-epioxytetracycline</td>
<td>0</td>
<td>104</td>
<td>440</td>
</tr>
<tr>
<td>Oxytetracycline</td>
<td>0</td>
<td>78</td>
<td>1160</td>
</tr>
<tr>
<td>Tetracycline</td>
<td>0</td>
<td>102</td>
<td>860</td>
</tr>
<tr>
<td>4-epichlorotetracycline</td>
<td>0</td>
<td>113</td>
<td>720</td>
</tr>
<tr>
<td>Chlorotetracycline</td>
<td>0</td>
<td>87</td>
<td>800</td>
</tr>
<tr>
<td>Doxycycline</td>
<td>0</td>
<td>49</td>
<td>800</td>
</tr>
</tbody>
</table>

**INSTALLATION AND CONDITIONING**
Put the SPE disk on the holder

**Loading solution:** One liter of reagent water put to pH 2-2.5 with HCl 37%. Add 80mg of sodium thiosulfate, and 500 mg of EDTA-Na₄₂H₂O. Solution is then spiked with analytes of interest.

**Important:** For each conditioning and elution step, apply a fast vacuum to soak the disk and wait 1 minute before starting elution.

**LOADING**
• 1 L of loading solution in 15 minutes

**WASHING**
• 20 mL ultrapure water

Apply vacuum for 30 s to dry the disk

**ELUTION**
• 20 mL Methanol
• *(for tetracyclines only)* 4*20 mL Methanol +3% Formic Acid

**ANALYSIS**
• Evaporation under N₂ and dissolved in mobile phase.
• Tetracyclines: Elutions mixed and diluted by 4 with water 5mM Oxalic Acid, prior to analysis. (Can also be evaporated)

**Catalog number:**
AttractSPE™ Disks HLB - 47mm diameter, 20/pk : SPE-Disks-HLB-47.T1.20
PAHs with AttractSPE™ Disks HLB

PROTOCOL OF PURIFICATION

Sample preparation
1L of water was put to pH<2 with HCl 37% (optional) and spiked at 20ng/L with each analyte (Benzo[a]anthracene, Chrysene, benzo[b]fluoranthene, benzo[k]fluoranthene, Benzo[a]pyrene, Diben[a,h]anthracene, Benzo[g,h,i]perylene).

Purification with a AttractSPE™Disks HLB

Equilibration
• Put the SPE disk on the holder
• 10 mL Acetone
• 10 mL Isopropanol
• 10 mL Methanol
• 50 mL of ultrapure water

Loading
• 1 L of loading solution

Elution (E)
• 10 mL Methanol
• 4x10 mL Ethyl Acetate

Evaporate the elution solution and reconstitute with 5mL Acetonitrile prior to analysis

Fluorescence chromatograms (λ_{exc/em} 252nm / 400nm) for 7 PAHs (1 - BaA, 2 – CHR, 3 - BbFA, 4 – BkFA, 5- BaP, 6- DbahA, 7 - BghiP)
The black profile uses the AttractSPE™ Disks HLB to concentrate the 20ng/L PAHs contained in 1L of water while the red one is the solution with PAHs standards.

Conditions of analysis:
LC-Fluorescence. Column: Zorbax eclipse PAH 4,6*50mm (1,8µm), at 30°C. Injection volume: 50 µL. Isocratic: Water / Acetonitrile 15 / 85. Flow rate: 0.5 mL/min, run of 25min.
Fluorescence detection: λ_{exc/em} 252nm / 400nm

RESULTS

Catalog number:
AttractSPE™ Disks HLB - 47mm diameter, 20/pk : SPE-Disks-HLB-47.11.20

<table>
<thead>
<tr>
<th>AttractSPE™ Disks HLB</th>
<th>Blank</th>
<th>Spiked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Benzo[a]anthracene BaA</td>
<td>0</td>
<td>90%</td>
</tr>
<tr>
<td>Chrysene CHR</td>
<td>0</td>
<td>90%</td>
</tr>
<tr>
<td>benzo[b]fluoranthene BbFA</td>
<td>0</td>
<td>90%</td>
</tr>
<tr>
<td>benzo[k]fluoranthene BjFA</td>
<td>0</td>
<td>96%</td>
</tr>
<tr>
<td>Benzo[a]pyrene BaP</td>
<td>0</td>
<td>91%</td>
</tr>
<tr>
<td>Diben[a,h]anthracene DBahA</td>
<td>0</td>
<td>92%</td>
</tr>
<tr>
<td>Benzo[g,h,i]perylene BghiP</td>
<td>0</td>
<td>99%</td>
</tr>
</tbody>
</table>
PAHs with AttractSPE™ Disks C18 - EPA method 550.1 Comparison with 3M Empore SPE Disks C18

PROTOCOL OF PURIFICATION

Sample preparation
1L of water was put to pH<2 with HCl 37% (optional) and spiked at 20ng/L with each analyte (Benzo[a]anthracene, Chrysene, benzo[b]fluoranthene, benzo[k]fluoranthene, Benzo[a]pyrene, Dibenz[a,h]anthracene, Benzo[g,h,i]perylene).

Purification with a AttractSPE™Disks C18

Equilibration
- Put the SPE disk on the holder
- 10 mL Ethyl Acetate
- 10 mL Methanol
- 50 mL of ultrapure water

Loading
- 1 L of loading solution

Elution (E)
- 10 mL Methanol
- 4x10 mL Ethyl Acetate

Evaporate the elution solution and reconstitute with 5mL Acetonitrile prior to analysis

RESULTS

Fluorescence chromatograms (λ_{exc/em} 252nm / 400nm) for 7 PAHs (1 - BaA, 2 – CHR, 3 - BbFA, 4 – BkFA, 5– BaP, 6- DbahA, 7 - BghiP) The black profile uses the AttractSPE™ Disks C18 to concentrate the 20ng/L PAHs contained in 1L of water while the red one is the solution with PAHs standards.

Conditions of analysis:
LC-Fluorescence. Column: Zorbax eclipse PAH 4.6*50mm (1.8µm), at 30°C. Injection volume: 50 µL. Isocratic: Water / Acetonitrile 15 / 85. Flow rate: 0.5 mL/min, run of 25min. Fluorescence detection: λ_{exc/em} 252nm / 400nm

Recovery yields obtained for the loading of 1L of water spiked with 7 PAHs at 20 ng/L each and using either AttractSPE™ Disks C18 or 3M Empore SPE disks C18

<table>
<thead>
<tr>
<th>AttractSPE™ Disks C18</th>
<th>3M Empore SPE disks C18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blank Spiked</td>
<td>Blank Spiked</td>
</tr>
<tr>
<td>Benzo[a]anthracene BaA 0       96% 0       96%</td>
<td></td>
</tr>
<tr>
<td>Chrysene CHR 0       98% 0       96%</td>
<td></td>
</tr>
<tr>
<td>benzo[b]fluoranthene BbFA 0     94% 0       93%</td>
<td></td>
</tr>
<tr>
<td>benzo[k]fluoranthene BjFA 0     98% 0       100%</td>
<td></td>
</tr>
<tr>
<td>Benzo[a]pyrene BaP 0       91% 0       94%</td>
<td></td>
</tr>
<tr>
<td>Dibenz[a,h]anthracene DBahA 0  88% 0       96%</td>
<td></td>
</tr>
<tr>
<td>Benzo[g,h,i]perylene BghiP 0  97% 0       97%</td>
<td></td>
</tr>
</tbody>
</table>

These experiments show that AttractSPE™ Disks C18 behave similarly to 3M Empore SPE Disks C18

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Catalog number: AttractSPE™ Disks C18 - 47mm diameter, 20/pk : SPE-Disks-C18-47.T1.20
Multiresidues analysis with AttractSPE™ Disks HLB comparison with competitor SPE Disks HLB

PROTOCOL OF PURIFICATION

Sample preparation
2L of water were spiked at 200ng/L with each molecule (Caffeine, Diclofenac and Metolachlor ESA).

Purification with a AttractSPE™ Disks HLB using SPE-DEX 4790 Automated Extractor System **

Equilibration
- Put the SPE disk on the holder
- 50 mL Methanol
- 50 mL of ultrapure water

Loading
- 2 L of loading solution

Elution (E)
- 50 mL Methanol
Dilute by 10 with ultrapure water prior to analysis

RESULTS

Conditions of analysis for Caffeine and Diclofenac:
LC-MS/MS HPLC U3000 - QTRAP 4000. Column: Hypersil Gold 150x2.1cm 3μm, pre-column (hypersil gold 1cm) at 30°C. Injection volume: 20 μL. Gradient: Water with 0.1% Formic acid and Acetonitrile with 0.1% Formic acid. Flow rate: 0.3 mL/min.

Conditions of analysis for Metolachlor ESA:
LC-MS/MS HPLC U3000 - QTRAP 4000. Column: Hypersil Gold 150x2.1cm 3μm, pre-column (hypersil gold 1cm) at 30°C. Injection volume: 20 μL. Gradient: Water with 0.01% Formic acid and Acetonitrile. Flow rate: 0.3 mL/min.

Recovery yields obtained for the loading of 2L of water spiked with several analytes at 200ng/L each and using either AttractSPE™ Disks HLB or competitor SPE disks HLB

<table>
<thead>
<tr>
<th></th>
<th>AttractSPE™ Disks HLB</th>
<th>Competitor SPE disks HLB</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Blank</td>
<td>Spiked</td>
</tr>
<tr>
<td>Caffeine</td>
<td>0</td>
<td>98%</td>
</tr>
<tr>
<td>Diclofenac</td>
<td>0</td>
<td>102%</td>
</tr>
<tr>
<td>Metolachlor ESA</td>
<td>0</td>
<td>88%</td>
</tr>
</tbody>
</table>

Catalog number:
AttractSPE™ Disks HLB - 47mm diameter, 20/pk: SPE-Disks-HLB-47.T1.20

** The testings were carried out with SPE-DEX 4790 Automated Extractor System by Toxem (Le Havre, France)
Acid herbicides with AttractSPE™ Disks Anion exchange SR

PROTOCOL OF PURIFICATION

Sample preparation
One liter of water was spiked at 1 µg/L of aminopyralid, clopyralid and picloram.

Purification with a AttractSPE™ Disks Anion exchange SR

Equilibration
• Put the SPE disk on the holder
• 50 mL of methanol
• 50 mL of ultrapure water

Loading
• 1 L of loading solution

Washing (E)
• 50 mL Ultrapure water

Elution (E)
• 50 mL Methanol with 3% formic acid

Dilute by 10 with mobile phase prior to analysis

RESULTS

Recovery yields obtained for the loading of 1 L of water spiked with 1 µg/L each using AttractSPE™ Disks Anion exchange SR to concentrate

<table>
<thead>
<tr>
<th>Recovery yield %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aminopyralid</td>
</tr>
<tr>
<td>Ultrapure water</td>
</tr>
<tr>
<td>Tap water</td>
</tr>
</tbody>
</table>

Conditions of analysis:

LC-MS/MS HPLC U3000 - QTRAP 4000.
Column: Hypersil Gold 150x2.1 cm 3 µm, pre-column (hypersil gold 1 cm) at 30°C.
Injection volume: 20 µL. Gradient: Water with 0.1% Formic acid and Acetonitrile with 0.1% Formic acid. Flow rate: 0.3 mL/min.

Catalog number:
AttractSPE™ Disks Anion Exchange SR - 47mm diameter, 20/pk: SPE-Disks-SAX-47.T1.20

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**Ionic Herbicides with AttractSPE™ Disks HLB**

**PROTOCOL OF PURIFICATION**

**Sample preparation**
One liter of water was spiked at 1 µg/L of metolachlor OA and metolachlor ESA.

**Purification with a AttractSPE™ Disks HLB**

**Equilibration**
- Put the SPE disk on the holder
- 50 mL of methanol
- 50 mL of ultrapure water

**Loading**
- 1 L of loading solution

**Washing (E)**
- 50 mL Ultrapure water

**Elution (E)**
- 50 mL Methanol with 3% formic acid
  Dilute by 10 with mobile phase prior to analysis

**RESULTS**

Recovery yields obtained for the loading of 1L of water spiked with 1µg/L each using **AttractSPE™ Disks HLB** to concentrate

<table>
<thead>
<tr>
<th></th>
<th>Metolachlor OA</th>
<th>Metolachlor ESA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultrapure water</td>
<td>100</td>
<td>102</td>
</tr>
<tr>
<td>Tap water</td>
<td>98</td>
<td>90</td>
</tr>
</tbody>
</table>

**Conditions of analysis:**
LC-MS/MS HPLC U3000 - QTRAP 4000. Column: Hypersil Gold 150x2.1cm 3µm, pre-column (hypersil gold 1cm) at 30°C. Injection volume: 20 µL. Gradient: Water with 0.1% Formic acid and Acetonitrile with 0.1% Formic acid. Flow rate: 0.3 mL/min.

**Catalog number:**
AttractSPE™ Disks HLB - 47mm diameter, 20/pk: SPE-Disks-HLB-47.T1.20
**AttractSPE™ Disks HLB** was successfully tested for the seven tetracyclines above and showed high recovery yields.

<table>
<thead>
<tr>
<th>Analyte</th>
<th>Blank</th>
<th>Spiked recovery %</th>
<th>Concentration (ng/L)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-epitetracycline</td>
<td>ND</td>
<td>70</td>
<td>68.6</td>
</tr>
<tr>
<td>4-epioxytetracycline</td>
<td>ND</td>
<td>97</td>
<td>36.6</td>
</tr>
<tr>
<td>Oxytetracycline</td>
<td>ND</td>
<td>87</td>
<td>96.6</td>
</tr>
<tr>
<td>Tetracycline</td>
<td>ND</td>
<td>75</td>
<td>71.3</td>
</tr>
<tr>
<td>4-epichlorotetracycline</td>
<td>ND</td>
<td>105</td>
<td>59.9</td>
</tr>
<tr>
<td>Chlorotetracycline</td>
<td>ND</td>
<td>75</td>
<td>66.6</td>
</tr>
<tr>
<td>Doxycycline</td>
<td>ND</td>
<td>93</td>
<td>66.6</td>
</tr>
</tbody>
</table>

**Loading solution:** To one liter of water, 22,195g of Disodium Hydrogen Phosphate heptahydrate, 11,257g of Citric Acid, and 500mg of ETDA-Na$_4$.2H$_2$O are added. The solution is mixed until total dissolution (pH measured = 4.2) and spiked with tetracyclines.

**Important:** For each conditioning and elution step, apply a fast vacuum to soak the disk and wait 1 minute before starting elution.

**Condition of analysis:** LC/MS-MS ESI+, Please find complete method available at our website

**CONDITIONING Step**
Put the SPE disk on the holder
- 20 mL Acetone
- 50 mL Methanol
- 20 mL of ultrapure water

**LOADING**
- 1 L of loading solution in 15 minutes

**WASHING**
- 20 mL ultrapure water
  *Apply vacuum for 30 s to dry the disk*

**ELUTION**
- 20 mL Methanol
- 20 mL Methanol +3% Formic Acid

**ANALYSIS**
- Evaporation under N$_2$ and dissolved with water 5mM Oxalic Acid, prior to analysis.

*Table: Recovery yields obtained for the loading of 1L of spiked solution.*

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