

APPLICATIONS

Extraction of NSAIDs from Urine using Strata[®] DE Supported Liquid Extraction (SLE)

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Overview

In this application, we provided a Supported Liquid Extraction method using Strata DE for the clean-up of non-steroidal anti-inflammatory drugs (NSAIDs). This method provides recoveries greater than 95% with % CVs less than 5% for all analytes tested using an extraction solvent of Ethyl acetate/Hexane (3:1). Methyl tert-butyl ether (MTBE) was also screened as an extracting solvent but yielded higher RSDs (<12%) and lower recoveries (>75%).

Materials and Methods

Sample Pre-treatment:

Dilute 100 µL of spike urine (100 ng/mL) with 100 µL of 0.1 % formic acid.

SLE Protocol

96-Well Plate: Strata DE 200 µL

Part No.: 8E-S325-FGB

Load: 200 µL Pre-treated sample

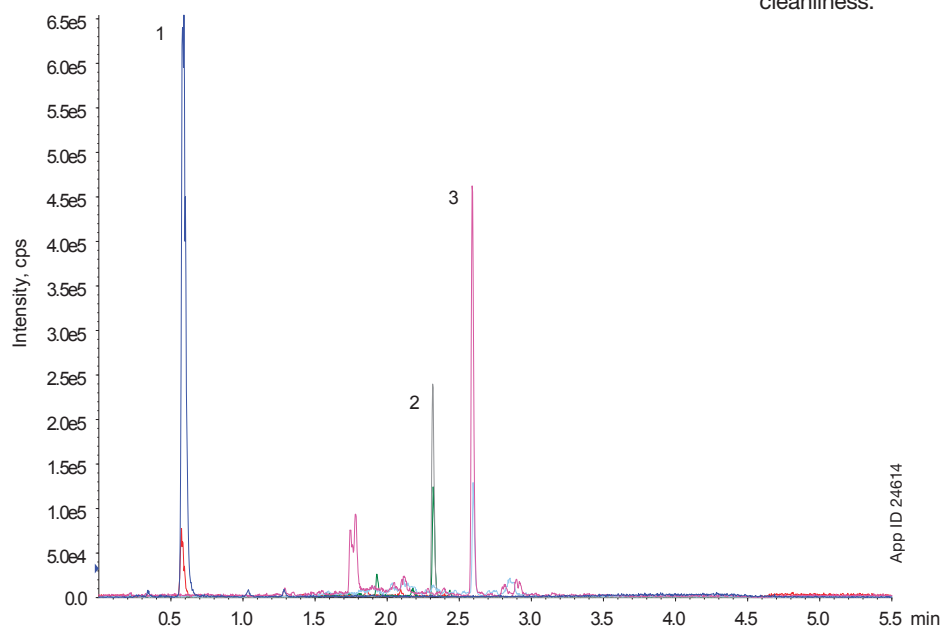
Wait: 6 minutes

Elute: 2x 600 µL Ethyl acetate/Hexane (3:1)

Dry: Sample under slow stream of Nitrogen at 30 °C

Reconstitute: 100 µL 0.1 % Formic acid in Methanol with 100 ng/mL concentration of Diclofenac D4, Acetaminophen D7, Naproxen D3

Figure 1.
TIC for Extracted Sample



LC-MS/MS Conditions

Columns: Kinetex[®] 2.6 µm C18
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 Acetonitrile
Gradient:

| Time (min) | % B |
|------------|-----|
| 0 | 10 |
| 2.5 | 100 |
| 3.5 | 100 |
| 3.51 | 10 |

Flow Rate: 0.5 mL/min
Injection: 3 µL
Detection: MS/MS (SCIEX API 4000™)
Sample: 1. Acetaminophen
 2. Naproxen
 3. Diclofenac

Table 1.
Recovery Values

| | Acetaminophen | Naproxen | Diclofenac |
|-------------|---------------|----------|------------|
| % Recovery | 95 | 109 | 109 |
| % RSD (n=6) | 3 | 1 | 5 |

Results and Conclusion

Figure 1 in this application note is a representative TIC for the Ethyl acetate/Hexane (3:1) elution solvent. **Table 1** shows that the extraction is accurate (>95% recovery) and precise (<5% RSD). Ethyl acetate as an elution solvent also yielded similar results, however the Ethyl acetate/Hexane mixture provided additional cleanliness.



APPLICATIONS

Ordering Information

Kinetex® Core-Shell LC Column

| 2.6 µm Minibore Columns (mm) | | | | | | SecurityGuard ULTRA Cartridges† |
|------------------------------|-------------|-------------|-------------|-------------|-------------|------------------------------------|
| Phases | 30 x 2.1 | 50 x 2.1 | 75 x 2.1 | 100 x 2.1 | 150 x 2.1 | 3/pk |
| C18 | 00A-4462-AN | 00B-4462-AN | 00C-4462-AN | 00D-4462-AN | 00F-4462-AN | AJO-8782 |

for 2.1 mm ID

† SecurityGuard ULTRA Cartridges require holder, Part No.: AJO-9000

Strata® DE Supported Liquid Extraction

| 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 |
| 8B-S325-KDG | Strata DE SLE 12 cc Tube | 20/pk |
| 8B-S325-VFF | Strata DE SLE 60 cc Tube | 16/pk |

Presston™ 100 Positive Pressure Manifold

| Part No. | Description |
|----------|--|
| AH0-9334 | Presston 100 Positive Pressure Manifold, 96-Well Plate |
| AH0-9342 | Presston 100 Positive Pressure Manifold, 1 mL Tube Complete Assembly |
| AH0-9347 | Presston 100 Positive Pressure Manifold, 3 mL Tube Complete Assembly |
| AH0-9343 | Presston 100 Positive Pressure Manifold, 6 mL Tube Complete Assembly |

Presston 100 Tube Adapter Kits (for AH0-9334)

| Part No. | Description |
|----------|-----------------------|
| AH0-9344 | 1 mL Tube Adapter Kit |
| AH0-9345 | 3 mL Tube Adapter Kit |
| AH0-9346 | 6 mL Tube Adapter Kit |



WARRANTY 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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