# SECTION 4: OASIS® ADVANCED METHODOLOGY

These advanced methodologies (combing the unique properties of Oasis chemistries, pH and organic concentration) facilitate the enrichment and cleanup for amphoteric and/or extreme polar analytes from very complex sample matrices.

## A: TANDEM OASIS® HLB-MCX METHOD

*Enrich and cleanup for weakly retained polar analytes.*

### STEP 1: OASIS® HLB, 6 cc (200 mg)
Enrich Extreme Polar Analytes

CONDITION:
2 mL methanol, 2 mL 2M NaCl

LOAD:
1.5 mL of potato extract

WASH:
0.8 mL water

ELUTE:
3 mL methanol (1% formic acid)

### STEP 2: OASIS® MCX, 1 CC (30 mg)
Pass-Through Cleanup

CONDITION:
2 mL methanol

LOAD:
Pass Eluent from Step 1
collect in total

RINSE/ELUTE:
0.5 mL methanol,
combine with passed eluent

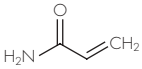
EVAPORATE & RECONSTITUTE:
0.4 mL water

### TANDEM OASIS® HLB-MCX RESULTS (for acrylamide in potato chips)

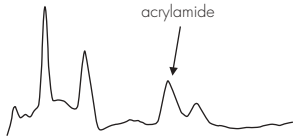
**LC/MS CONDITIONS**

| | |
|---|---|
| INSTRUMENT: | Alliance 2695 |
| COLUMN: | Atlantis™ $dc_{18}$, 2.1 x 150 mm, 5µm |
| PART NUMBER: | 186001301 |
| FLOW RATE: | 0.20 mL/min |
| MOBILE PHASE: | 0.1% HCOOH |
| INJECTION VOLUME: | 20µL |
| TEMPERATURE: | 30°C |
| INSTRUMENT: | Waters/Micromass ZQ™ |
| ION SOURCE: | Electrospray positive |
| MODE: | Multiple selected-ion reading |
| SOURCE TEMPERATURE: | 150°C |
| DESOLVATION TEMPERATURE: | 350°C |
| DESOLVATION GAS: | 500 L/Hr |

Result from single cartridge with excess water elution




Result from Tandem Oasis® HLB/MCX




ACRYLAMIDE
SPE METHOD PERFORMANCE
Internal standard calculation (n = 5)

| FORTIFICATION Level (µg/kg) | AMOUNT Found (µg/kg) | % RSD |
|---|---|---|
| 100 | 96 | 12 |
| 200 | 211 | 8.7 |
| 500 | 488 | 5.8 |
| 1000 | 1010 | 8.0 |
| 2000 | 2000 | 6.5 |



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## B: TANDEM OASIS® MAX-MCX METHOD

*Enrich and cleanup for amphoteric compounds.*

### STEP 1: OASIS® MAX
6 cc (150 mg) Cartridge
Removes basic and neutral interferences

CONDITION:
1 mL methanol, 1 mL 5 N NaOH,
1 mL water

LOAD:
5 mL of prepared sample

WASH 1:
1 mL 5% ammonia in water

WASH 2:
1 mL methanol

ELUTE:
2 mL of 0.2N HCl in methanol

### STEP 2: OASIS® MCX
1 cc (30 mg) Cartridge
Removes acidic interferences

CONDITION:
1mL methanol

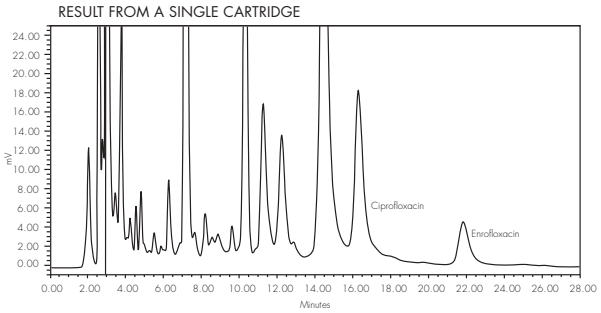
LOAD:
Eluent from Step 1

WASH:
2mL of methanol

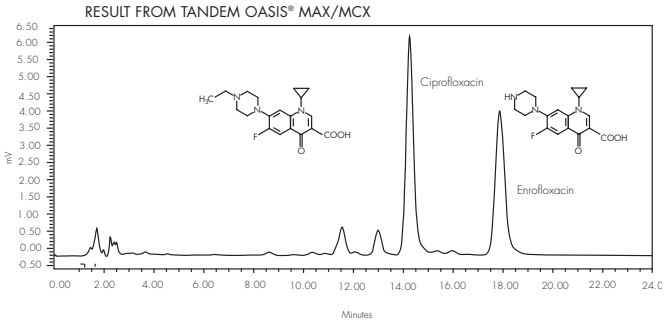
ELUTE:
500µL of 10% $NH_4OH$ in methanol into
a 1mL volumetric flask

Neutralize with formic acid and bring to
volume with mobile phase.

TANDEM OASIS® MAX-MCX RESULTS
(For fluoroquinolone antibiotics in beef kidney)




MOBILE PHASE CONDITIONS
Column: Altantis™ $dC_{18}$ 4.6 x 150 5-µm
73% 0.2% NFPA (nonafluoropentanoic Acid)
4% MeOH
23% ACN
T=30




## C: PASS-THROUGH METHODOLOGY

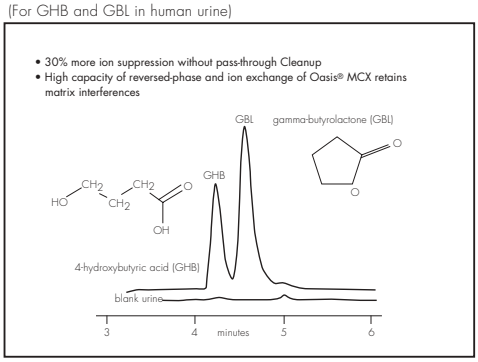
*Retain the maximum amount of sample interferences while passing through the analytes of interest.*

CONDITION/EQUILIBRATE:
1 mL methanol, 1 mL water

LOAD:
0.15 mL of urine @ pH 2

ELUTE:
1 mL mobile phase

PASS-THROUGH OASIS® MCX RESULTS
(For GHB and GBL in human urine)

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