



## Pharmaceutical Residues in Environmental Samples – LC-MS, 2.5 ppb

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Waters Corporation



This is an Application Brief and does not contain a detailed Experimental section.

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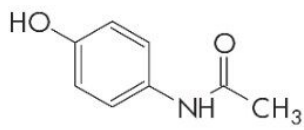
### Abstract

This application brief highlights the analysis of pharmaceutical residues in environmental samples using XTerra MS C<sub>18</sub> columns.

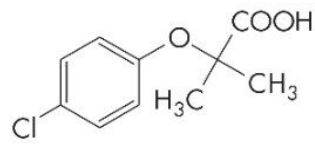
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## Introduction

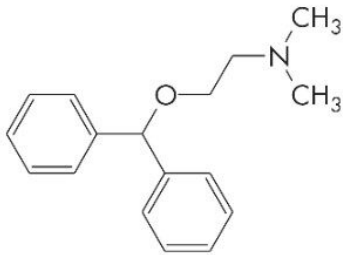
Compounds used in this study includes: 1. Acetaminophen 2. Phenylpropanolamine 3. Salicylic acid 4. Diphenhydramine 5. Clofibric acid 6. Ethynylestradiol 7. Tamoxifen 8. Ibuprofen



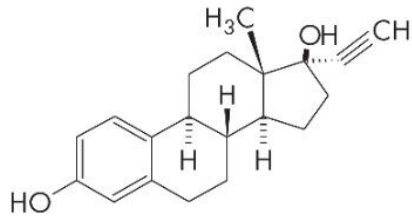
Acetaminophen



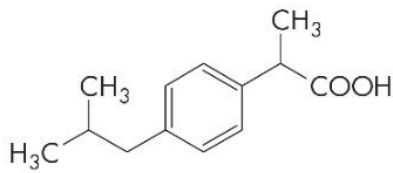
Clofibric acid



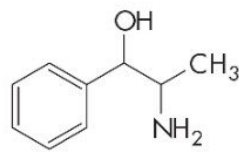
Diphenhydramine



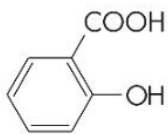
Ethynylestradiol



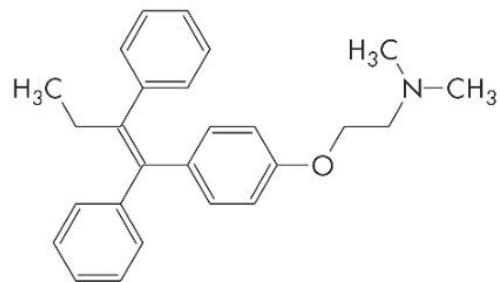
Ibuprofen



Phenylpropanolamine



Salicylic acid



Tamoxifen

## HPLC Conditions

Column:	XTerra MS C <sub>18</sub> 4.6 x 100 mm, 3.5µm (p/n: 186000436)
Mobile phase A:	15 mM NH <sub>4</sub> COOH, pH 4.0
Mobile phase B:	MeOH
Flow rate:	1.0 mL/min
Injection volume:	40 µL
Detection:	MS ESI+
Instrument:	Alliance 2695, Micromass ZQ

## Gradient

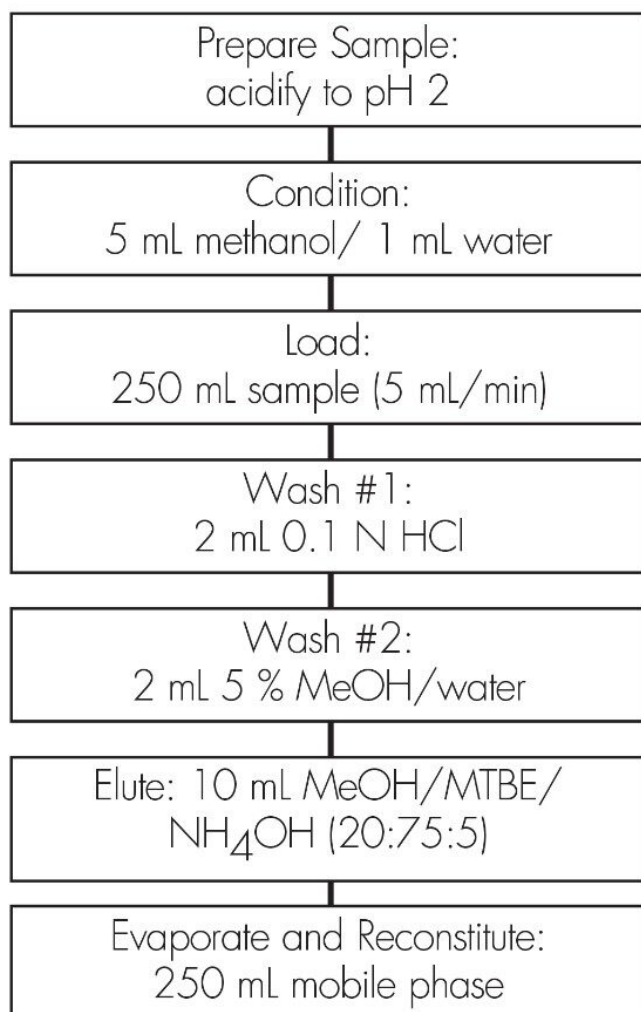
Time (min)	Profile	
	%A	%B
0.0	75	25
10.0	10	90

# Optimized SPE Method for LC/MS Determination of Pharmaceutical Residues in Environmental Samples

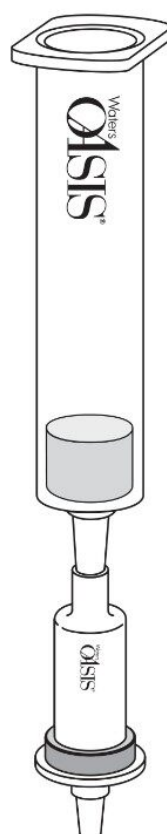
Conditions for

Oasis® MCX 6 cc/150 mg (60 µm) Part Number 186000255

Oasis® HLB Plus Part Number 186000132



MeOH - methanol MTBE - methyl tbutyl ether  
NH<sub>4</sub>OH - 30% ammonium hydroxide

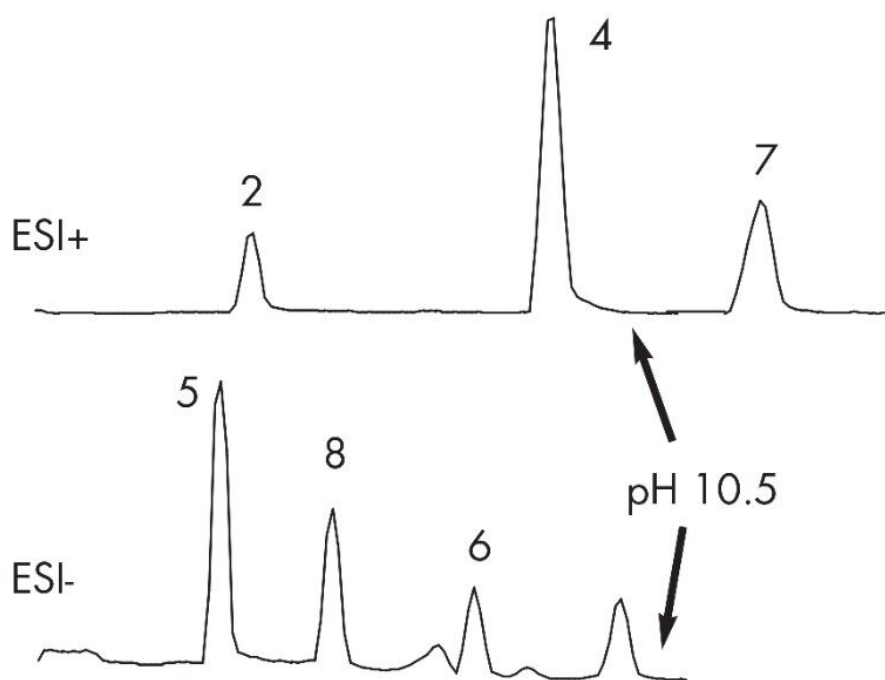


Oasis® MCX 6 cc,  
150 mg (60 mm)  
Part Number 186000255

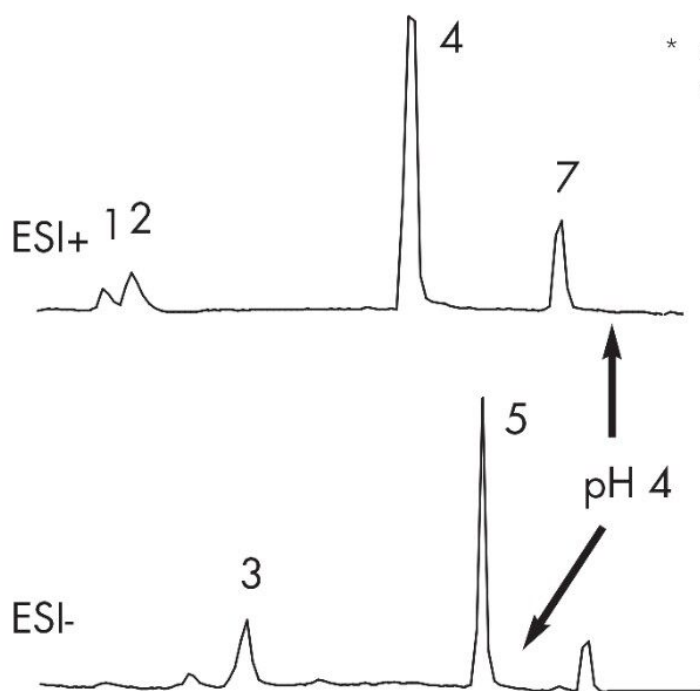
Oasis® HLB Plus  
Part Number 186000132

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## Results and Discussion



\* note: ethynylestradiol response only @ pH 10.5



Alliance HPLC <<https://www.waters.com/514248>>

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