

Advil Allergy Sinus Tablet: Oasis MCX

Waters Corporation



Abstract

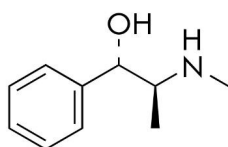
This application note highlights analysis of advil allergy sinus tablet using Oasis MCX.

Introduction

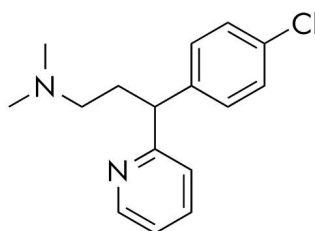
This formulation is a good example of a mixture of bases and an acid. The Oasis 2x4 Method was employed and the Oasis MCX plates resulted in the best recoveries for all three analytes.

The compounds used in this study are -

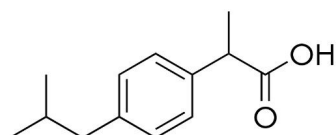
- Pseudoephedrine
- Chlorpheniramine
- Ibuprofen



Pseudoephedrine (Base)
MW 165.2
pKa 9.9



Chlorpheniramine (Base)
MW 274.8
pKa 9.2



Ibuprofen (Acid)
MW 206.3
pKa 5.2

Experimental

Test Conditions

Oasis MCX 10-mg 96-well Plates

Condition:	500 µL MeOH
Equilibrate:	500 µL H ₂ O
Load:	500 µL sample (250 µL plasma diluted 1:1 with 4% H ₃ PO ₄ in H ₂ O)
Wash 1:	500 µL 2% FA
Elute 1:	2 x 125 µL MeOH (Ibuprofen)
Elute 2:	2 x 125 µL 5% NH ₄ OH in MeOH (Bases)
Options:	1. Dilute Elute 2 with 250 µL 2% FA in water and Elute 1 with 250 µL 100% water and analyze separately. 2. Combine the two elutions and evaporate/reconstitute.
Pseudoephedrine HCl (Base):	1.5 µg/mL
Chlorpheniramine Maleate (Base):	0.1 µg/mL
Ibuprofen (Acid):	10 µg/mL
Column:	ACQUITY UPLC BEH C ₁₈ , 2.1 x 50 mm, 1.7 µm
Mobile phase A:	0.1% HCOOH in H ₂ O
Mobile phase B:	0.1% HCOOH in MeOH
Flow rate:	0.3 mL/min

Oasis MCX 10-mg 96-well Plates

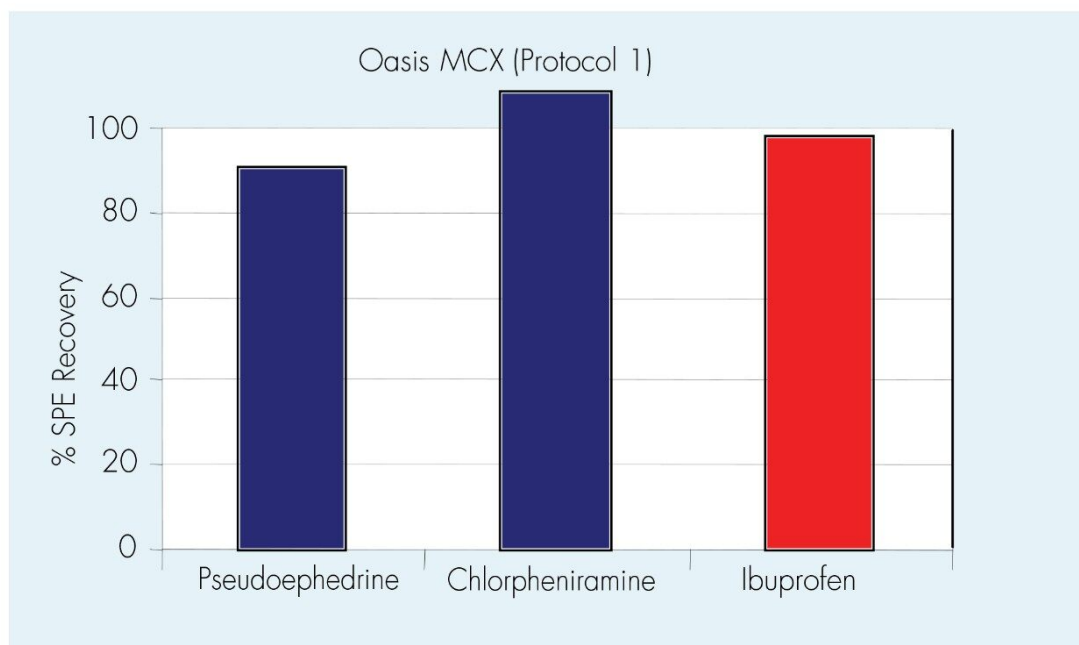
Injection volume: 10.0 μ L

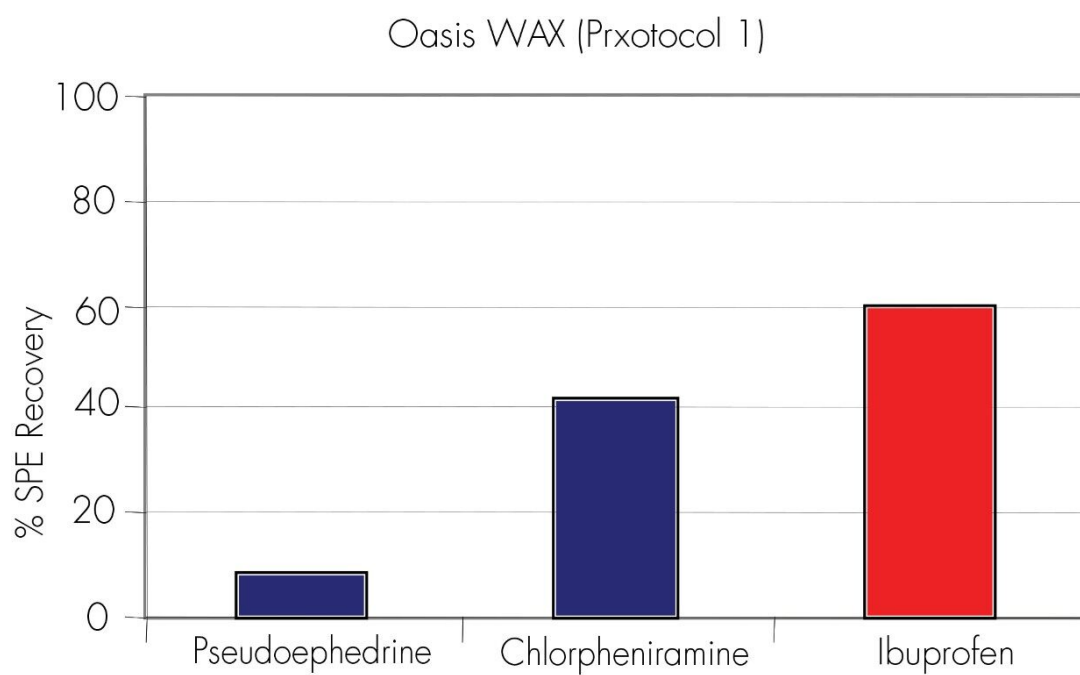
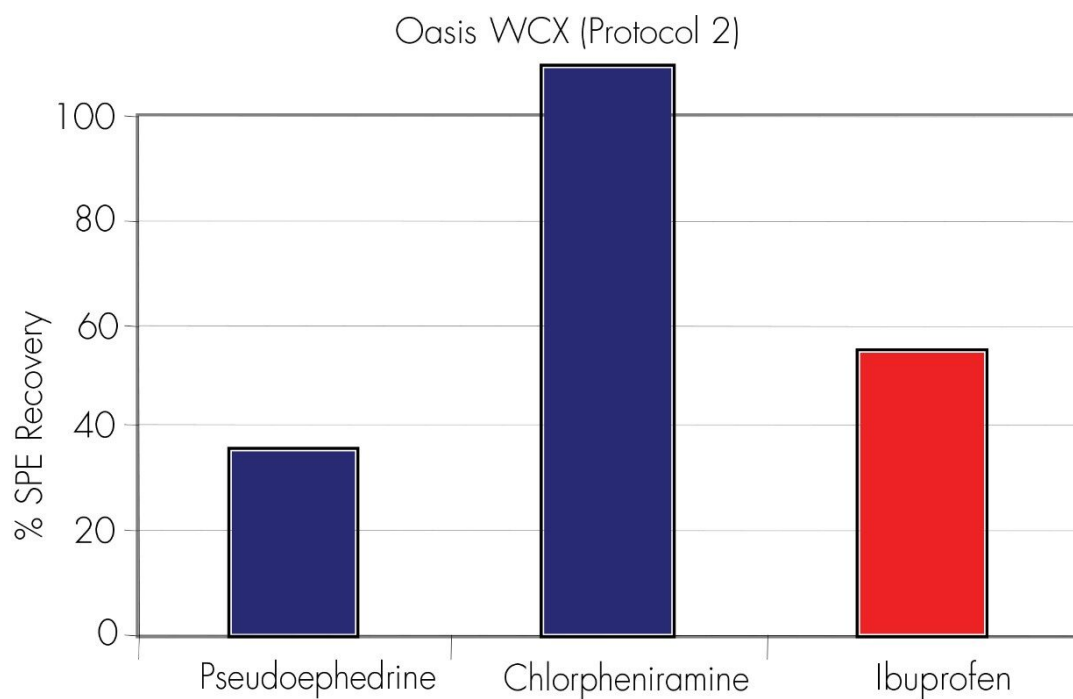
Column temp: 4 $^{\circ}$ C

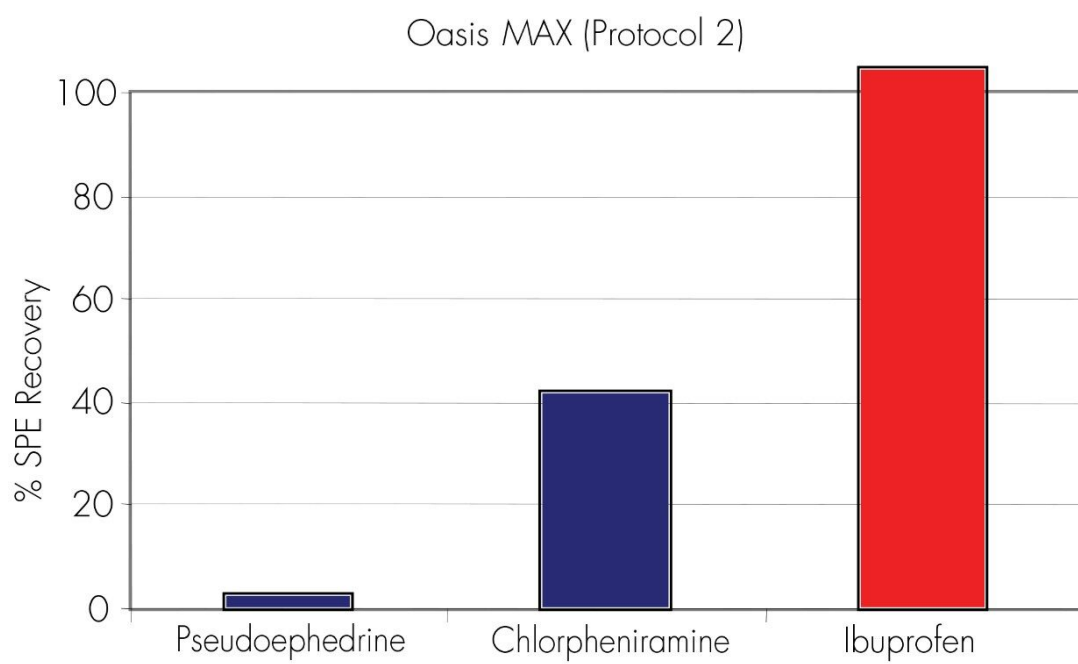
Sample temp: 10 $^{\circ}$ C

Instrument: ACQUITY UPLC with Quattro Premier

SPE Recovery Data: Optimun Sorbent and Protocol







Gradient

Time (min)	Profile	
	%A	%B
0.0	95	5
1.0	95	5
3.0	20	80
4.0	20	80
4.5	95	5
6.0	95	5

Quattro Premier

ESI⁺ and ESI⁻ capillary: 3.0 kV

Source temp: 100 °C

Desolvation temp: 350 °C

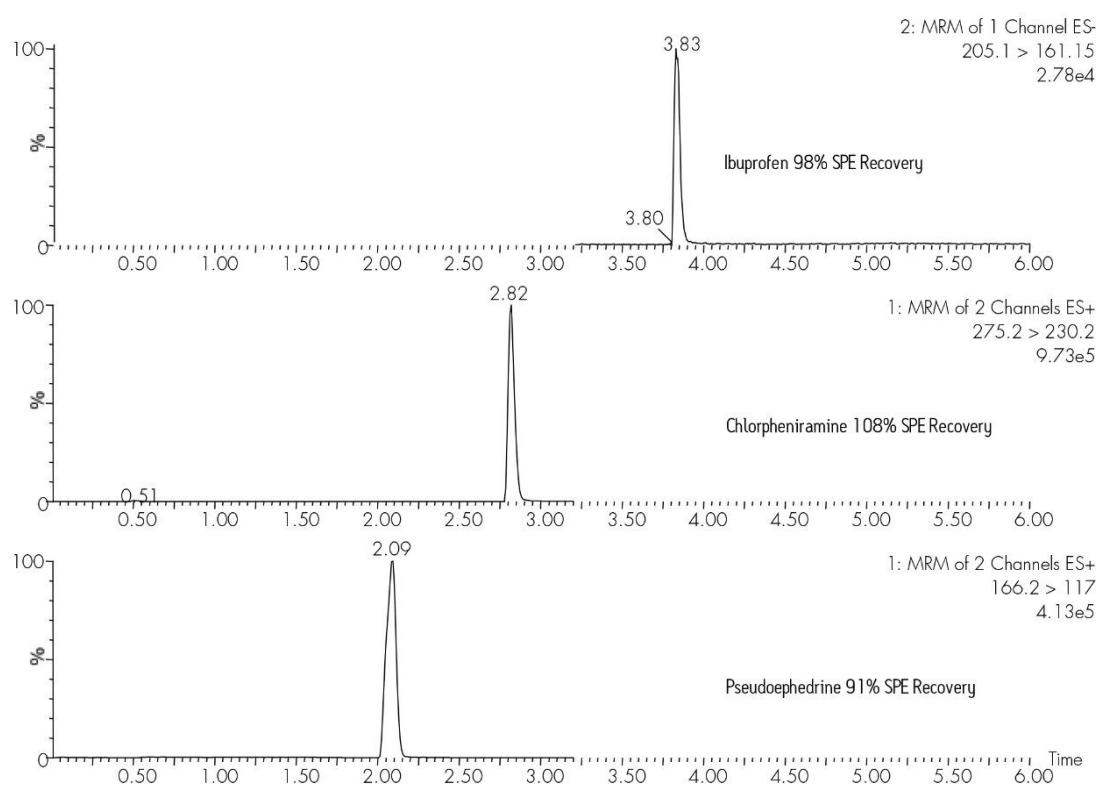
Cone gas flow: 0 L/Hr

Desolvation gas flow: 700 L/Hr

Collision cell pressure: 2.59 e⁻³ mbar

Compound	Precursor ion (<i>m/z</i>)	Product ion (<i>m/z</i>)	Cone voltage (V)	Collision energy (eV)
Ibuprofen (ESI-)	205.1	161.1	20	12
Pseudoephedrine (ESI+)	166.2	117	30	20
Clorpheniramine (ESI+)	275.2	232.2	30	20

Results and Discussion



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ACQUITY UPLC System <<https://www.waters.com/514207>>

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