

## ACQUITY UPLC Analysis of Morphine

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Waters Corporation

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### Abstract

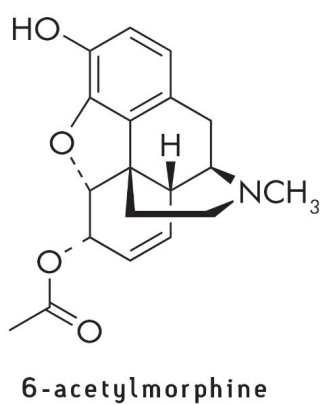
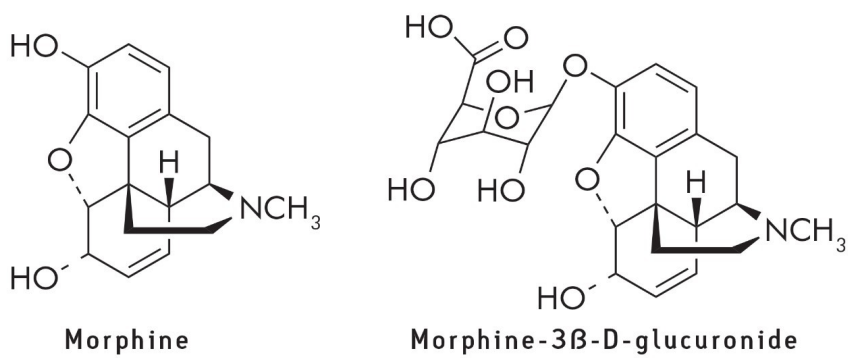
This application brief highlights the analysis of morphine on ACQUITY UPLC BEH Amide Columns.

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### Introduction

The compounds analysed in this study are:

1. 6-acetylmorphine (100 ng/mL)
2. Morphine (100 ng/mL)
3. Morphine-3  $\beta$ -D-glucuronide (5 g/mL)



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## Experimental

### Chromatographic Conditions

|                 |                                                                                    |
|-----------------|------------------------------------------------------------------------------------|
| Column:         | ACQUITY UPLC BEH Amide, 2.1 x 50 mm, 1.7 μm                                        |
| Part Number:    | 186004800                                                                          |
| Mobile Phase A: | 50/50 MeCN/H <sub>2</sub> O with 10 mM NH <sub>4</sub> COOH and 0.125% HCOOH, pH 3 |

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|                     |                                                                                    |
|---------------------|------------------------------------------------------------------------------------|
| Mobile Phase B:     | 90/10 MeCN/H <sub>2</sub> O with 10 mM NH <sub>4</sub> COOH and 0.125% HCOOH, pH 3 |
| Flow Rate:          | 0.6 mL/min                                                                         |
| Injection Volume:   | 5 µL (PLNO)                                                                        |
| Sample Diluent:     | 75/25 MeCN/MeOH with 0.2% HCOOH                                                    |
| Column Temperature: | 30 °C                                                                              |
| Weak Needle Wash:   | 95/5 MeCN/H <sub>2</sub> O                                                         |
| Instrument:         | Waters ACQUITY UPLC with ACQUITY SQD                                               |

## Gradient

| Time (min) | Profile |      |
|------------|---------|------|
|            | %A      | %B   |
| Initial    | 0.1     | 99.9 |
| 1.05       | 0.1     | 99.9 |
| 4.35       | 99.9    | 0.1  |
| 4.50       | 0.1     | 99.9 |
| 6.00       | 0.1     | 99.9 |

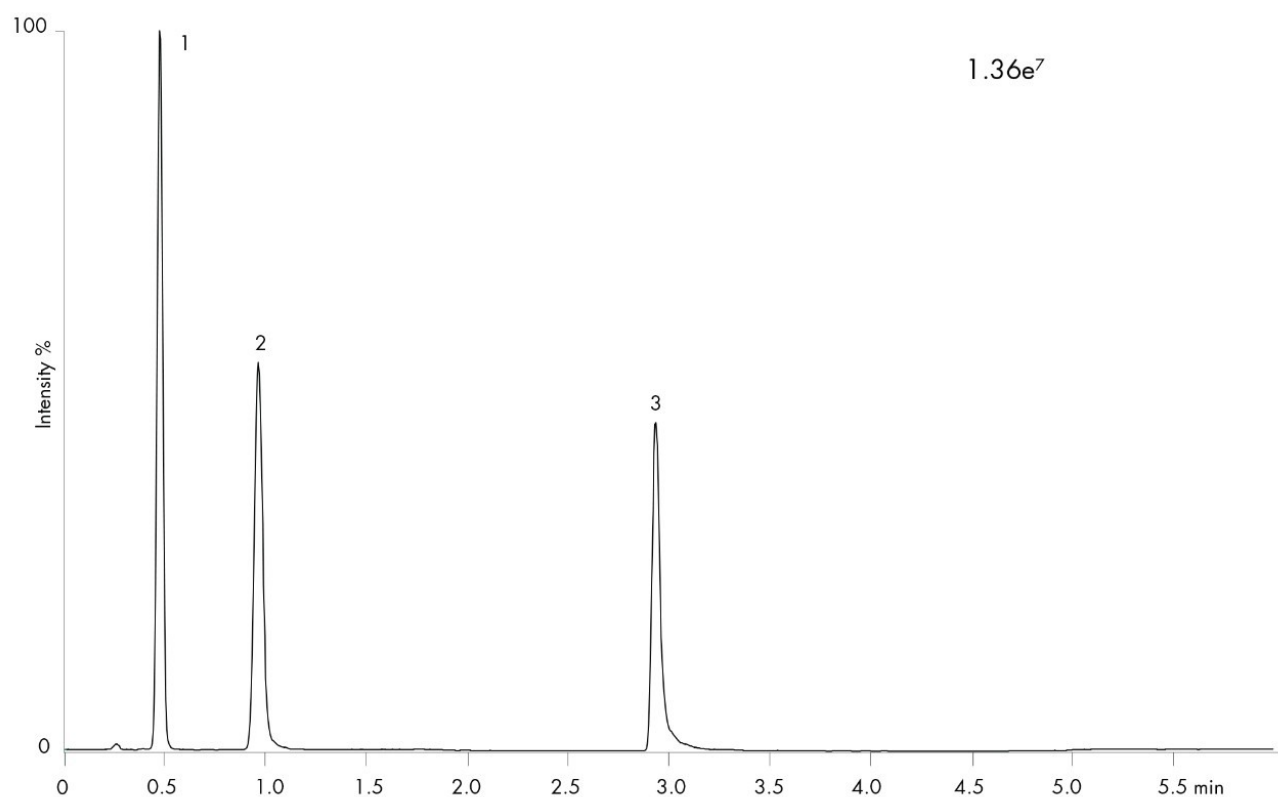
## Mass Spectrometer Conditions

|                  |        |
|------------------|--------|
| Ionization Mode: | ES+    |
| Capillary:       | 3.0 KV |

|                              |                                                                                             |
|------------------------------|---------------------------------------------------------------------------------------------|
| Cone:                        | 30 V (6-Acetyl morphine and Morphine),<br>40 V (Morphine-3 $\beta$ -D-glucuronide)          |
| Source Temperature:          | 120 °C                                                                                      |
| Desolvation Temperature:     | 350 °C                                                                                      |
| Desolvation Gas Flow (L/Hr): | 800                                                                                         |
| SIR <i>m/z</i> :             | 329.5 (6-Acetyl morphine);<br>287.5 (Morphine)<br>463.6 (Morphine-3 $\beta$ -D-glucuronide) |
| Dwell Time:                  | 0.1 s                                                                                       |

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## Results and Discussion



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## Featured Products

SQ Detector 2 <<https://www.waters.com/134631584>>

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