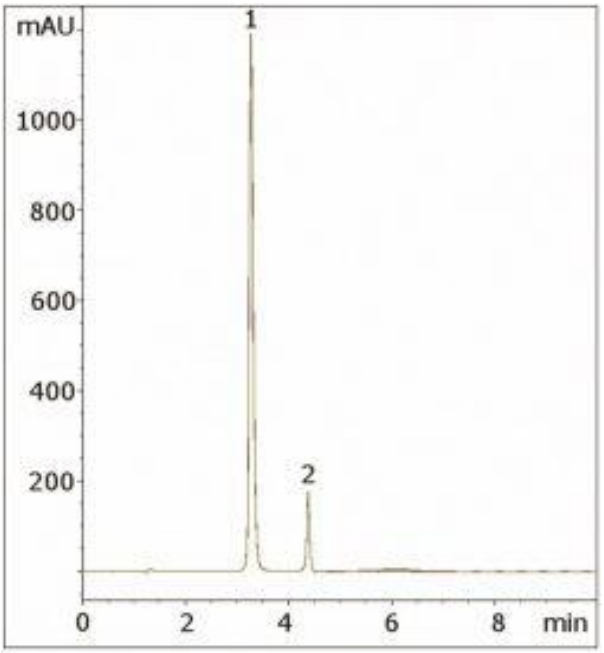
Hydrocodone with Acetaminophen Analyzed by HPLC - AppNote

Simple, Robust Assay Method

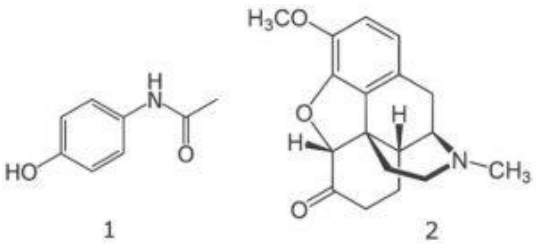
Click *HERE* for Column Ordering Information.

Hydrocodone can yield poor Peak shapes in many conventional Reversed Phase C18 Methods due to its tertiary amine group. The USP Assay Method for Hydrocodone in combination with Acetaminophen uses Triethylamine as a Mobile Phase additive to improve the Peak shape.

In this Method however, only Trifluoroacetic Acid is needed in the Mobile Phase for a Symmetrical Hydrocodone Peak. In addition, the Repeatability of the analysis is excellent as the five-run overlay in the Figure shows. Retention time %RSDs of < 0.1% were obtained for both Peaks.



Overlay of 5 runs



1 2

Peaks:

1. Acetaminophen
2. Hydrocodone

Method Conditions

Column: Cogent Phenyl Hydride™, 4µm, 100Å

Catalog No.: 69020-7.5P
Dimensions: 4.6 x 75mm
Mobile Phase:
A: DI Water / 0.1% Trifluoroacetic Acid (TFA)
B: Acetonitrile / 0.1% Trifluoroacetic Acid (TFA)
Gradient:

Time *(minutes)*	%B
0	5
1	5
5	60
6	5

Temperature: 35˚C
Injection vol.: 5µL
Flow rate: 1.0mL / minute
Detection:
0–4 minutes: UV @ 295nm
4–10 minutes: UV @ 210nm
Sample Preparation: One tablet containing 5mg Hydrocodone / 500mg Acetaminophen was ground and diluted to 100mL with 50:50 Solvent A / Solvent B mixture. The solution was then sonicated 10 minutes and filtered with a 0.45µm Nylon Syringe Filter (MICROSOLV Tech Corp.).
t_0: 0.9 minutes

Note: *Hydrocodone is a semi-synthetic opioid used as a narcotic analgesic to relieve moderate to severe pain. The formulation which includes Acetaminophen is marketed under several trade names, including Vicodin® and Lortab®.*

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