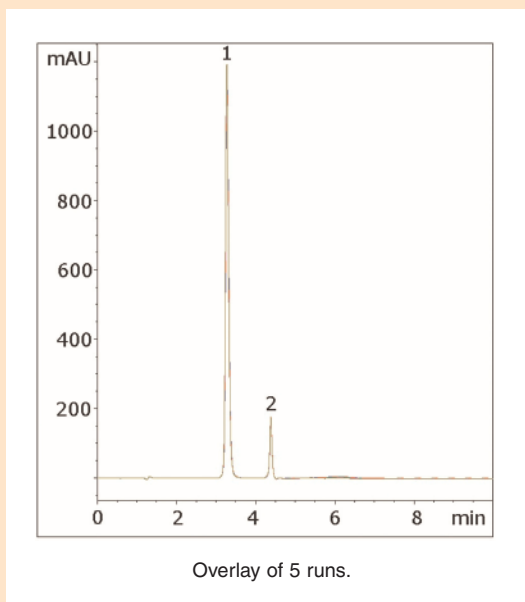
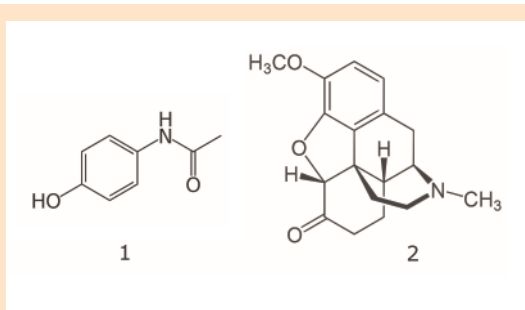


Hydrocodone/Acetaminophen Simple, Robust Assay Method



Notes:
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®.

Method Conditions

Column: Cogent Phenyl Hydride™ 4µm, 100A
Catalog No.: 69020-7.5P
Dimensions: 4.6 x 75 mm
Mobile Phase: A: DI H₂O/ 0.1% TFA
 B: Acetonitrile/ 0.1% TFA

Gradient:	time (min.)	%B
	0	5
	1	5
	5	60
	6	5

Temperature: 35 °C
Flow Rate: 1.0 mL/min
Injection Vol.: 5 µL
Samples: One tablet containing 5 mg hydrocodone/ 500 mg acetaminophen was ground and diluted to 100 mL with 50/50 solvent A/solvent B mixture. The solution was then sonicated 10 min and filtered with a 0.45 µm nylon syringe filter (MicroSolv Tech Corp).
Peaks:
 1. Acetaminophen
 2. Hydrocodone
Detection:
 0–4 min: UV 295 nm;
 4–10 min: UV 210 nm
t₀: 0.9 min

Discussion

Hydrocodone can yield poor peak shapes in many conventional reverse-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 when the Phenyl Hydride™ column is used. 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.

For more information visit www.MTC-USA.com

Cat. No.	Description
69020-7.5P	Phenyl Hydride™ HPLC Column, 100A, 4µm, 4.6mm x 75mm