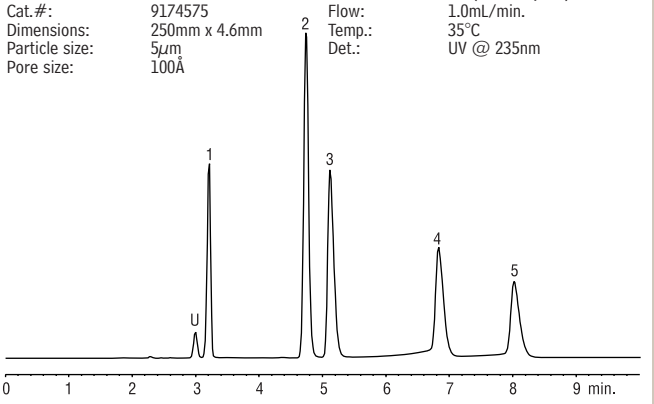
Analgesic Acetaminophen and Narcotic Analgesics on Ultra C18

Peak List:	Conc. (µg/mL)
U. unknown	unknown
1. morphine sulfate	204
2. acetaminophen	92
3. codeine phosphate	216
4. oxycodone HCl	206
5. hydrocodone bitartrate	218

Sample:
Inj.: 4.0µL
Sample: raw material mix
Solvent: mobile phase

Column: Ultra C18
Cat.#: 9174575
Dimensions: 250mm x 4.6mm
Particle size: 5µm
Pore size: 100Å

Conditions:
Mobile phase: A: 10mm potassium phosphate, pH 2.8
B: acetonitrile:methanol, (90:10, v/v) (85A:15B, v/v)
Flow: 1.0mL/min.
Temp.: 35°C
Det.: UV @ 235nm



LC_0221

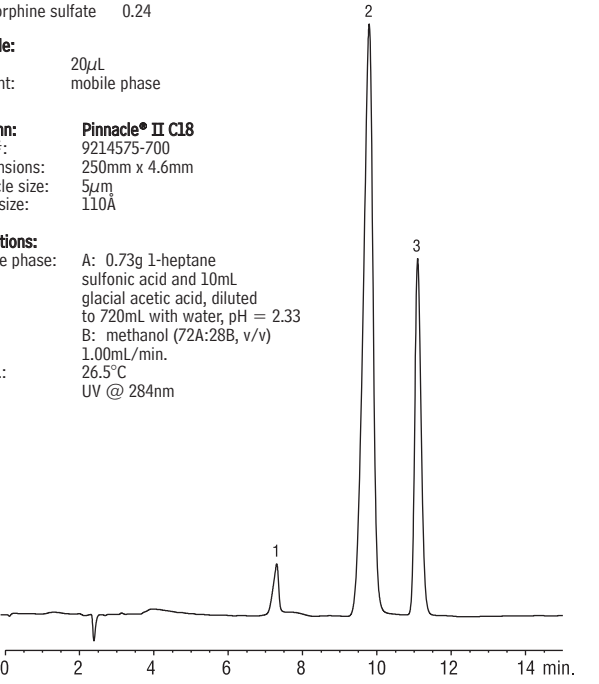
Narcotic Analgesic Morphine Sulfate Raw Material - USP 25: Resolution Solution on Pinnacle® II C18

Peak List:	Conc. (µg/mL)
1. unknown	unknown
2. phenol	0.15
3. morphine sulfate	0.24

Sample:
Inj.: 20µL
Solvent: mobile phase

Column: Pinnacle® II C18
Cat.#: 9214575-700
Dimensions: 250mm x 4.6mm
Particle size: 5µm
Pore size: 110Å

Conditions:
Mobile phase: A: 0.73g 1-heptane sulfonic acid and 10mL glacial acetic acid, diluted to 720mL with water, pH = 2.33
B: methanol (72A:28B, v/v)
Flow: 1.00mL/min.
Temp.: 26.5°C
Det.: UV @ 284nm



LC_0209

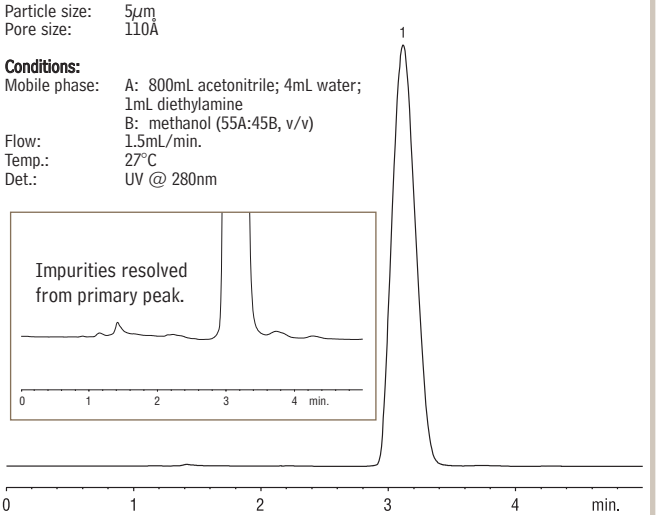
Narcotic Analgesic Hydrocodone Bitartrate by USP 25 on Pinnacle® II Silica

Peak List:	Ret. Time (min.)	Inj. % RSD (n = 5)
1. hydrocodone bitartrate	3.1	0.37%

Sample:
Inj.: 20µL
Conc.: 1µg/mL
Sample: assay standard
Solvent: mobile phase

Column: Pinnacle® II Silica
Cat.#: 9210575
Dimensions: 250mm x 4.6mm
Particle size: 5µm
Pore size: 110Å

Conditions:
Mobile phase: A: 800mL acetonitrile; 4mL water; 1mL diethylamine
B: methanol (55A:45B, v/v)
Flow: 1.5mL/min.
Temp.: 27°C
Det.: UV @ 280nm



LC_0211

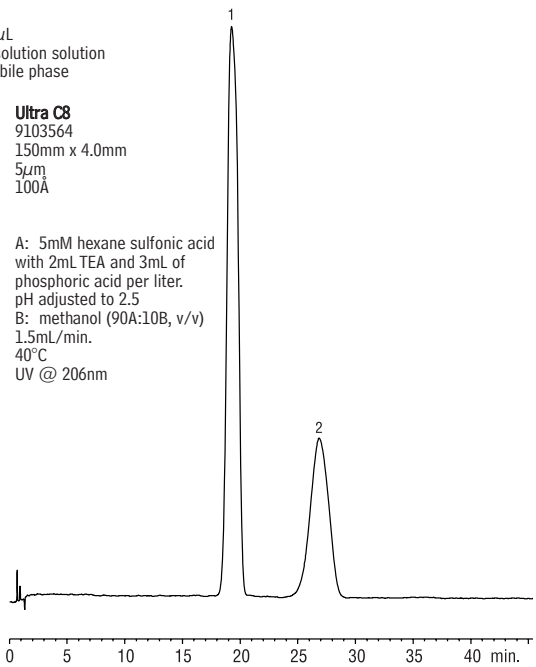
Narcotic Analgesic Oxycodone HCl Raw Material by USP 25: Resolution Solution on Ultra C8

Peak List:	Conc. (µg/mL)	Ret. Time (min.)	RRT	Tailing	Res.
1. codeine phosphate	13	19.3	0.7	1.1	—
2. oxycodone HCl	9	26.8	1.0	0.99	3.3

Sample:
Inj.: 10µL
Sample: resolution solution
Solvent: mobile phase

Column: Ultra C8
Cat.#: 9103564
Dimensions: 150mm x 4.0mm
Particle size: 5µm
Pore size: 100Å

Conditions:
Mobile phase: A: 5mM hexane sulfonic acid with 2mL TEA and 3mL of phosphoric acid per liter. pH adjusted to 2.5
B: methanol (90A:10B, v/v)
Flow: 1.5mL/min.
Temp.: 40°C
Det.: UV @ 206nm



LC_0213