

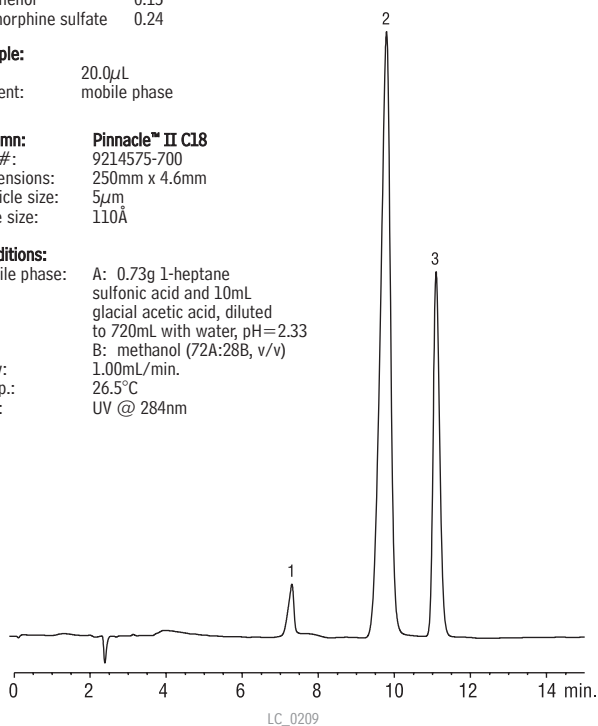
## Narcotic Analgesic Morphine Sulfate Raw Material - USP 25: Resolution Solution on Pinnacle™ II C18

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

**Sample:**  
Inj.: 20.0µL  
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



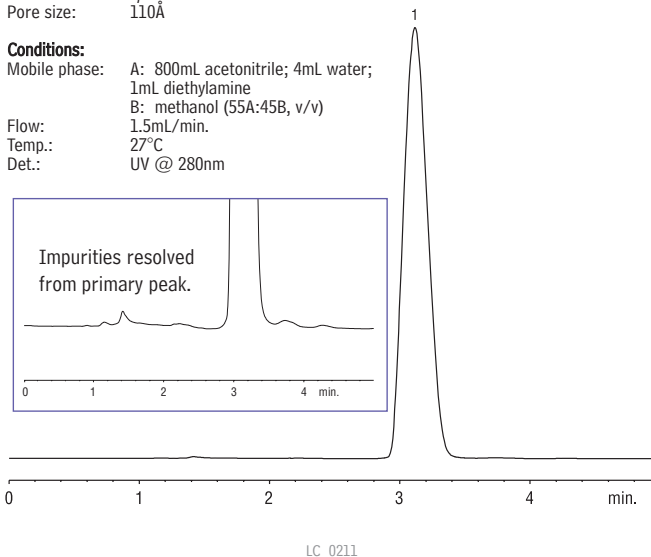
## Narcotic Analgesic Hydrocodone Bitartrate by USP 25 on Pinnacle™ II Silica

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



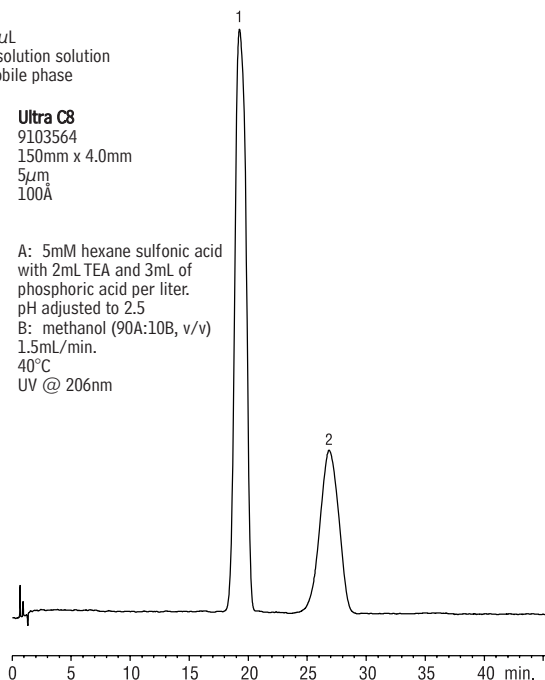
## Narcotic Analgesic Oxycodone HCl Raw Material by USP 25: Resolution Solution on Ultra C8

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



## Antiarrhythmic Calcium Channel Blockers on Ultra Cyano

Peak List:
1. diltiazem
2. nifedipine impurity
3. verapamil
4. nifedipine
5. nicardipine

**Sample:**  
Inj.: 5µL  
Conc.: 100mg/mL  
Solvent: acetonitrile:water (1:1)

**Column:** Ultra Cyano  
Cat.#: 9106565  
Dimensions: 150mm x 4.6mm  
Particle size: 5µm  
Pore size: 100Å

**Conditions:**  
Mobile phase: 20mM potassium phosphate monobasic, pH 3.0:acetonitrile (70:30, v/v)  
Flow rate: 1.2mL/min.  
Temp.: 30°C (±1°C)  
Det.: 235nm

