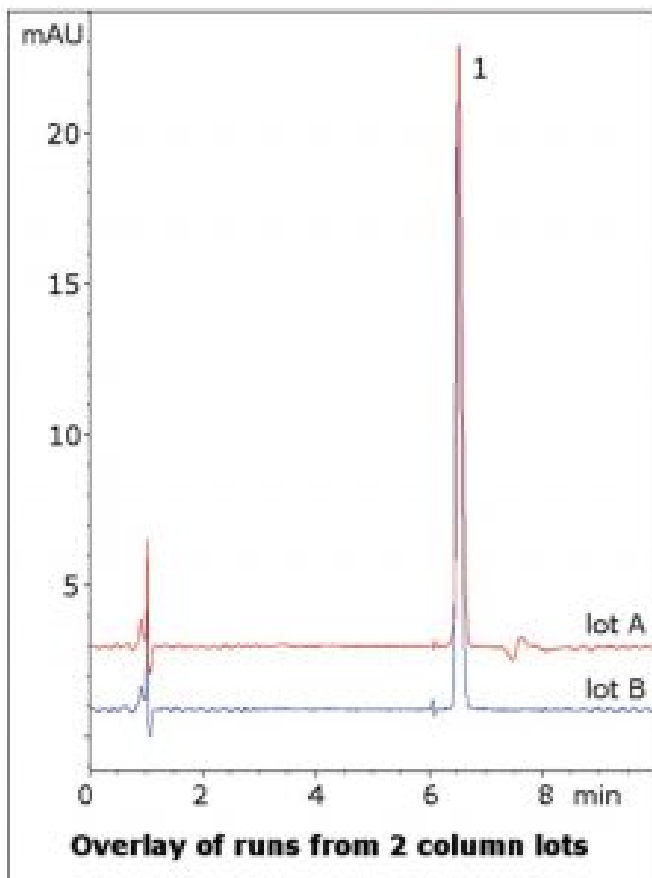


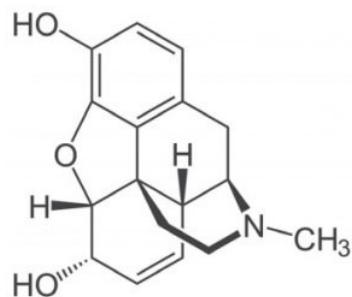
## Morphine Sulfate Tablet Analyzed by HPLC- AppNote

### Excellent Peak Shape for Tertiary Amine

Morphine can be a very problematic compound for analysis by HPLC. It has a tertiary amine and has a tendency to tail under some conditions. USP assay methodology uses phosphates, alkylsulfonates, or other LC-MS incompatible agents in the Mobile Phase.

This Method uses only Formic Acid and can be readily adapted for LCMS. As such, analysis of Morphine in blood samples can be achieved with excellent retention and peak shape.





**Peak:**

Morphine Sulfate

### Method Conditions

**Column:** Cogent Diamond Hydride™, 4μm, 100Å

**Catalog No.:** 70000-7.5P

**Dimensions:** 4.6 x 75mm

#### Mobile Phase:

A: DI Water / 0.1% Formic Acid (v/v)

B: Acetonitrile / 0.1% Formic Acid (v/v)

#### Gradient:

Time (minutes)	%B
0	90
1	90



6	40
7	90

**Post Time:** 3 minutes

**Injection vol.:** 1 $\mu$ L

**Flow rate:** 1.0mL / minute

**Detection:** UV @ 284nm

**Sample Preparation:** 15mg strength Morphine Sulfate tablet was ground and weighed in a 25mL volumetric flask. A portion of 50:50 Solvent A / Solvent B diluent was added and the flask was sonicated 10 minutes. It was then diluted to mark and filtered with a 0.45 $\mu$ m Nylon Syringe Filter (MicroSolv Tech Corp.).

**t<sub>0</sub>:** 0.9 minutes

**Note:** Morphine is a highly potent opiate analgesic widely used in clinical applications to treat severe pain. However, tolerance and addiction develop rapidly with its use so it has potential for abuse as well. It is named after Morpheus, the Greek god of dreams.



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