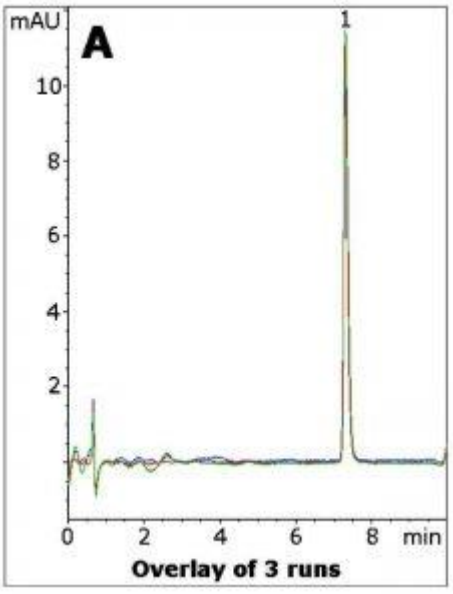
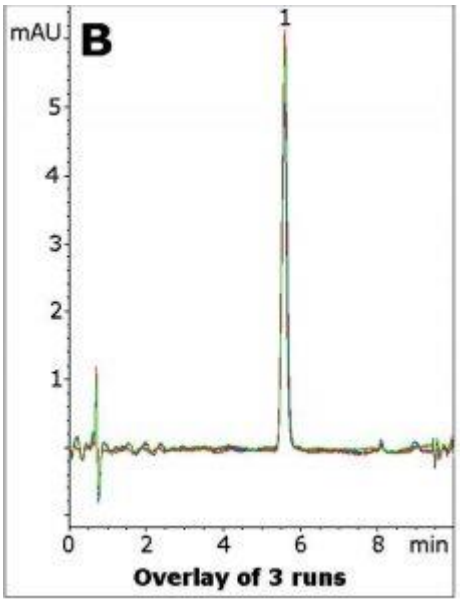
Morphine Sulfate Tablet HPLC Method Transferred - AppNote

Standard 4um Particle Size Transferred to 2.o™

This application illustrates how methods developed using the 4µm Cogent Diamond Hydride Columns may be adapted for Cogent Diamond Hydride 2.o™ phases. Morphine shows slightly higher retention on the 2.o™ Column (average 7.311 min vs. 5.588 min). The efficiency is almost twice as high when using the smaller particle sized column, demonstrating the excellent benefits of this option.

Three runs were performed on each column in order to demonstrate consistency.





Morphine

Peak: Morphine sulfate

Method Conditions

Columns:

- *Fig. A:* Cogent Diamond Hydride 2.o™, 120Å
- *Fig. B:* Cogent Diamond Hydride™, 4µm, 100Å

Catalog Nos.:

- *Fig. A:* 70200-05P-2;
- *Fig. B:* 70000-05P-3

Dimensions:

- *Fig. A:* 2.1 x 50 mm
- *Fig. B:* 3.0 x 50 mm

Mobile Phase:

- Solvent A: DI Water / 0.1% Formic Acid (v/v)
- Solvent B: Acetonitrile / 0.1% Formic Acid (v/v)

Gradient:

Time *(minutes)*	%B
0	90
0.4	90
7.4	40
8.4	90

Post time: 5 minutes
Injection vol.: 0.2 µL
Flow rate:

- *Fig. A:* 0.29 mL / minutes
- *Fig. B:* 0.50 mL / minutes

Detection: UV @ 284 nm

Sample: 15 mg strength Morphine Sulfate tablet was ground and weighed in a 25 mL volumetric

flask. A portion of 50 / 50 Solvent A / Solvent B diluent was added and the flask was sonicated for 10 minutes. Solution was then diluted to mark and filtered with a 0.45 µm Nylon Syringe Filter (MICROSOLV Tech Corp.).

t_0: 0.4 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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