

# APPLICATIONS

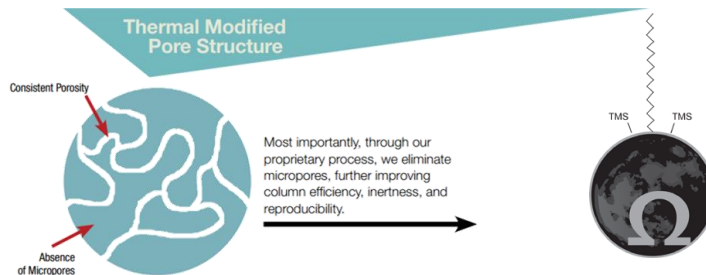
## Luna® Omega C18 Column-to-Column and Batch-to-Batch Reproducibility From HPLC to UHPLC

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### Overview

The Luna Omega 1.6 µm C18 was originally released to bring even greater sub-2 µm performance to any UHPLC system. Its fully porous particle architecture allows for high surface area in combination with high-pressure mechanical stability as a result of base particle processing; resulting in a highly selective and robust fully porous C18 column. Available in both 3 and 5 µm particle sizes the Luna Omega C18 can bring high performance and reproducibility to any LC system, along with easier method transfer. In this example, a representative pharmaceutical standard comprised of promethazine and related substances was obtained and injected on both Luna Omega C18 of 1.6 µm and 5 µm particle sizes; demonstrating the relative scalability of the sub-2 µm to the 5 µm HPLC and preparative particle size.



### LC Conditions

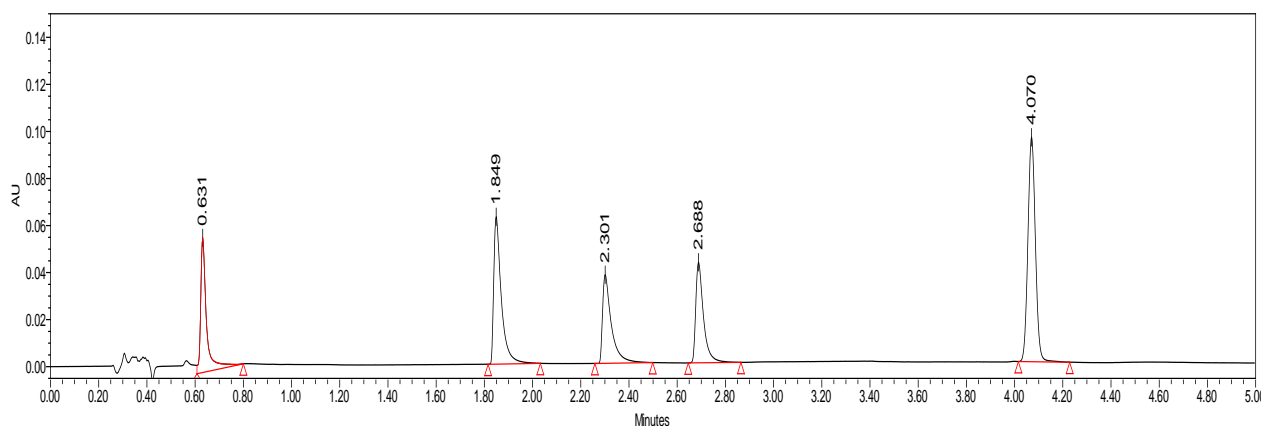
**Column:** Luna Omega 1.6 µm C18  
**Dimension:** 50 x 2.1 mm  
**Part No.:** [00B-4742-AN](#)  
**Mobile Phase:** A: Acetonitrile and buffer (3.7g/L Ammonium Acetate in Water)  
 B: Acetonitrile

Gradient: Time (min)	B %
0	0
0.5	0
3.5	60
5	60
5.5	0
8	0

**Flow Rate:** 0.4 mL/min  
**Temperature:** 30 °C  
**Detector:** UV @ 249 nm  
**Injection Volume:** 5 µL of (5 mg/mL)  
**Sample:** Promethazine and Related Substances

### Sample Detail:

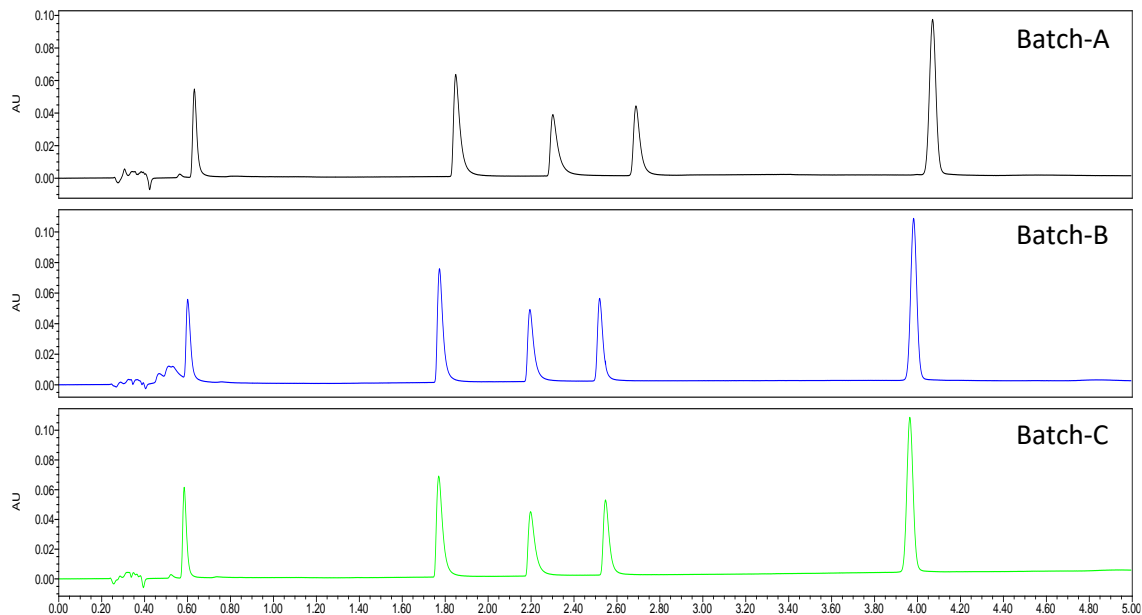
1. Promethazine Sulfoxide
2. Demethyl Promethazine HCL
3. Promethazine HCL
4. Promethazine Related B
5. Phenothiazide



App ID: 26103

## UHPLC and HPLC, Reproducible Scalability

The representative standard was a complex mixture of promethazine and related substances standard dissolved in water with 0.1 % formic acid. A Waters<sup>®</sup> ACQUITY<sup>®</sup> I-Class was used with the Luna Omega 1.6  $\mu$ m C18 and an Agilent<sup>®</sup> 1260 Binary was used with the Luna Omega 5  $\mu$ m C18.



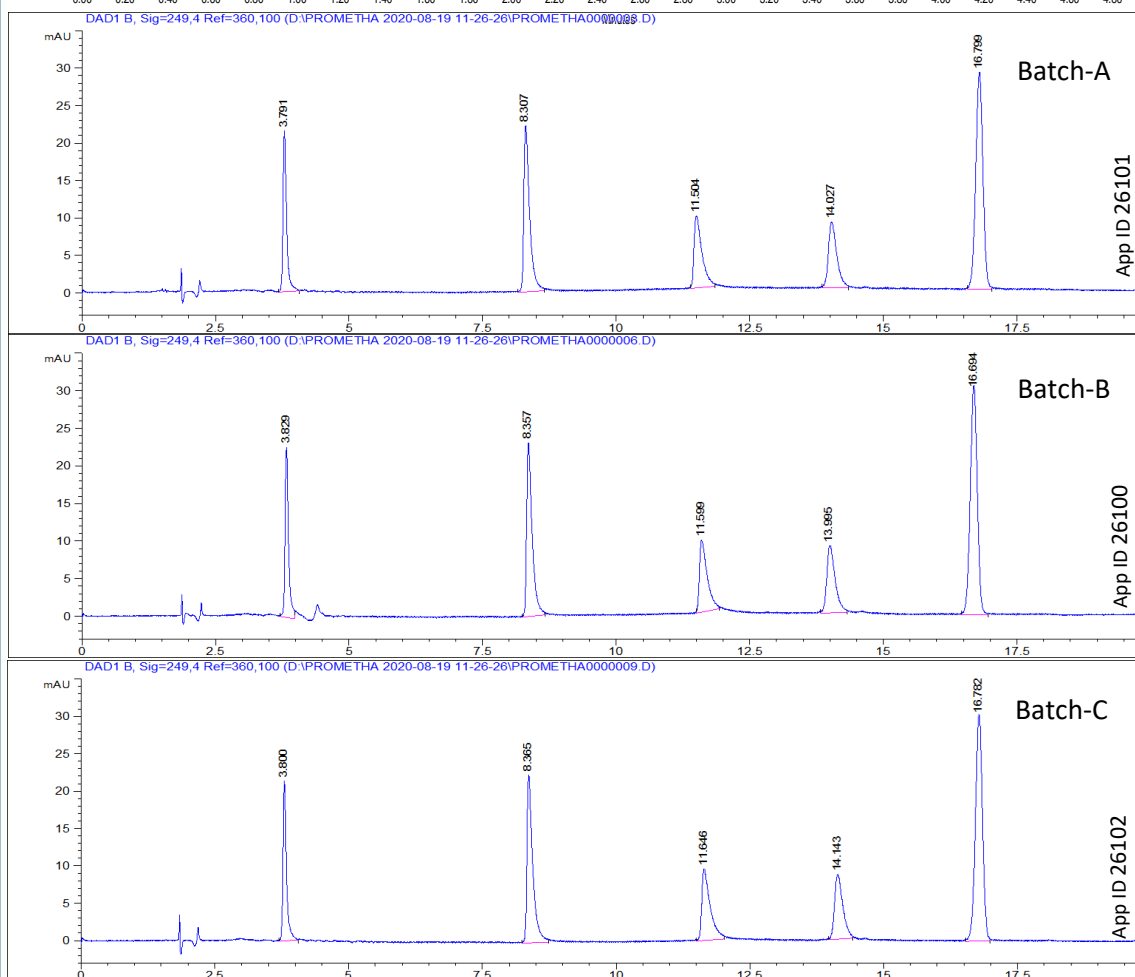
App ID 26104

UHPLC: ACQUITY i-Class  
Luna Omega 1.6  $\mu$ m C18  
50 x 2.1 mm

[00B-4742-AN](#)

Time	B%
0	0
0.5	0
3.5	60
5	60
5.5	0
8	0

**Injection Vol.:** 5  $\mu$ L  
**Flow Rate:** 0.4 mL/min  
**Backpressure:** 342 bar



HPLC: Agilent 1260  
Luna Omega 5  $\mu$ m C18  
250 x 4.6 mm

[00G-4785-E0](#)

Time	B%
0	0
10	40
18	40
18.1	0
25	0

**Injection Vol.:** 15  $\mu$ L  
**Flow Rate:** 1.4 mL/min  
**Backpressure:** 206 bar

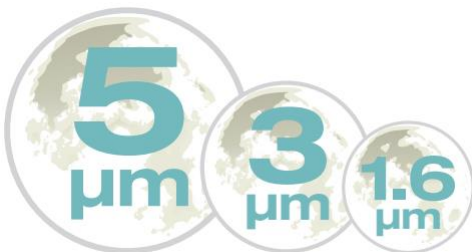
### Sample Detail:

1. Promethazine Sulfoxide
2. Demethyl Promethazine HCL
3. Promethazine HCL
4. Promethazine Related B
5. Phenothiazide



## Conclusion

In this example, two LC systems were used to demonstrate the scalability and reproducibility of Luna Omega C18 across two available HPLC and UHPLC particle sizes and dimensions. To demonstrate this, a representative pharmaceutical QC suitability mixture of promethazine and 4 related compounds was injected onto three batches of each particle size. We compared the selectivity of the smaller higher pressure 1.6  $\mu\text{m}$ , to the selectivity of the largest lower pressure 5  $\mu\text{m}$  particle across two different HPLC/UHPLC systems. The Luna Omega C18 is a fully porous HPLC and UHPLC particle solution that can provide high performance on any system. Because it is reproducibly scalable, the Luna Omega C18 provides method portability and flexibility to fit the analytical demands of the method, no matter where the testing has to happen.



# APPLICATIONS

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