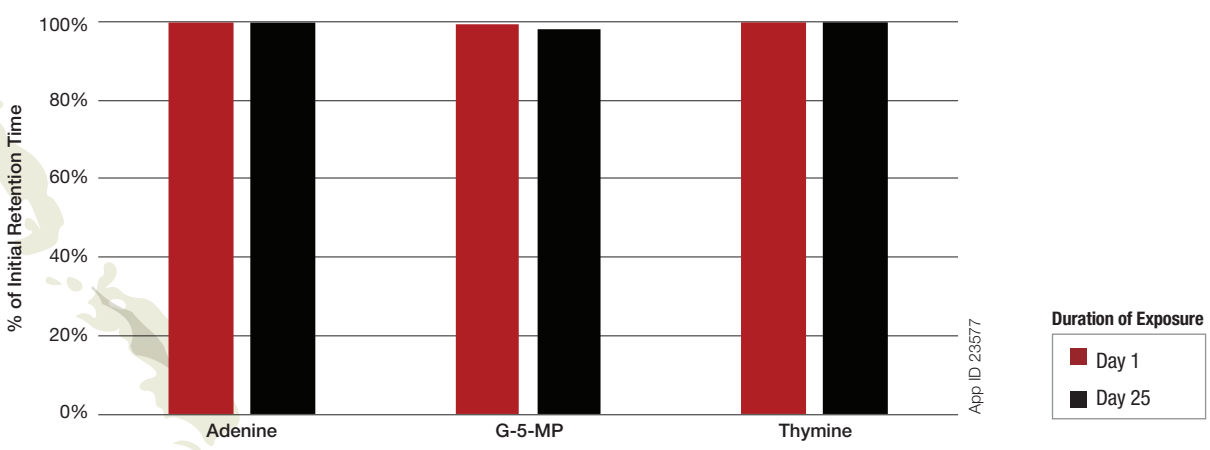
Luna® Omega
5 Frequently Asked Questions

1 Question 1: Are the Luna Omega stationary phases stable with a 100 % aqueous mobile phase?

The Luna Omega Polar C18, Luna Omega PS C18, and Luna Omega SUGAR columns are all 100 % aqueous stable. The Luna Omega C18 requires a minimum of 5 % organic solvent in the mobile phase to prevent phase de-wetting.

Aqueous Stability of Luna Omega Polar C18



Columns: Luna Omega 1.6 µm Polar C18
Dimension: 50 x 2.1 mm
Part No.: 00B-4748-AN
Mobile Phase: 10 mM Ammonium Formate with 0.1 % Formic Acid
Flow Rate: 0.4 mL/min

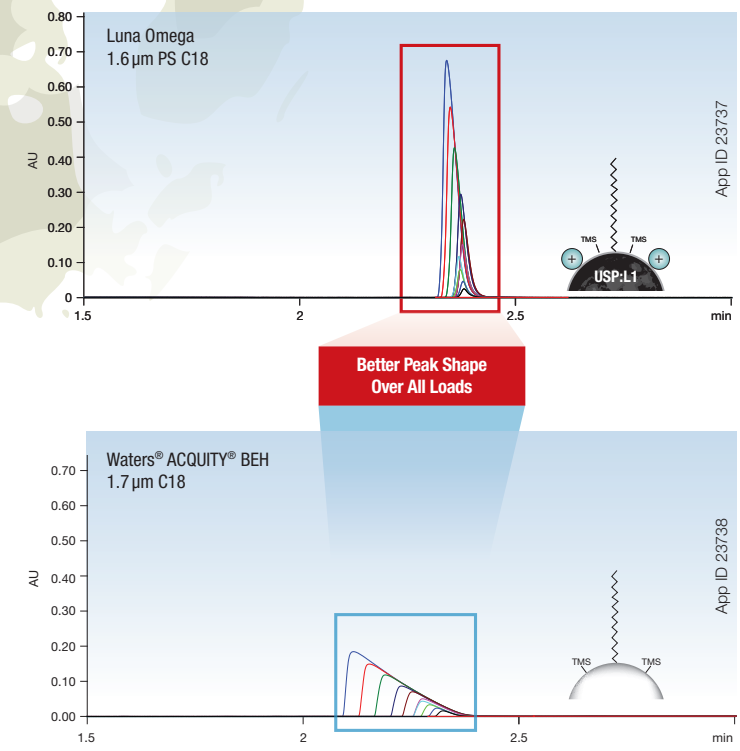
Temperature: 25 °C
Detection: UV @ 254 nm
Sample: 1. Adenine
2. Guanosine-5-Monophosphate
3. Thymine

Comparative separations may not be representative of all applications.

2 Question 2: How does the loadability of Luna Omega compare to other fully porous stationary phases?

A thermal treatment process during the manufacturing of the Luna Omega silica particles does reduce the relative surface area of the material, however, this reduction does not negatively impact the loadability. This is because the thermal treatment reduces the presence of micropores rather than accessible particle porosity. As such, Luna Omega stationary phases provide excellent loadability in comparison to other fully porous stationary phase materials.

Amitriptyline Loading Study



Conditions for all columns:
Columns: Luna Omega 1.6 µm PS C18
ACQUITY BEH 1.7 µm C18
Dimensions: 50 x 2.1 mm
Mobile Phase: A: Water with 0.1 % Formic Acid
B: Acetonitrile with 0.1 % Formic Acid
Gradient:

Time (min)	% B
0	5
5	80

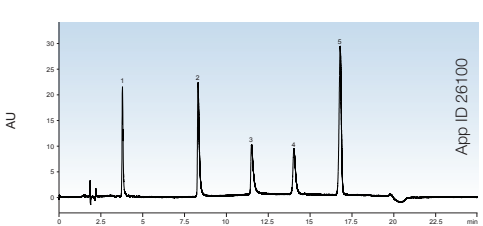
Flow Rate: 0.4 mL/min
Temperature: 22 °C
Detection: UV @ 254 nm
Sample: 1. Amitriptyline (0.02 µg)
2. Amitriptyline (0.04 µg)
3. Amitriptyline (0.06 µg)
4. Amitriptyline (0.08 µg)
5. Amitriptyline (0.10 µg)
6. Amitriptyline (0.15 µg)
7. Amitriptyline (0.20 µg)
8. Amitriptyline (0.30 µg)
9. Amitriptyline (0.40 µg)
10. Amitriptyline (0.5 µg)

Comparative separations may not be representative of all applications.

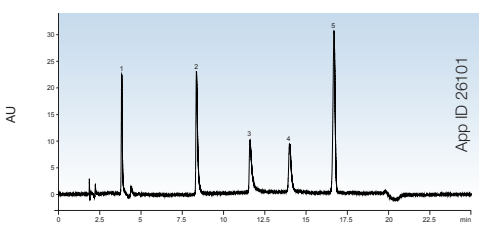
3 Question 3: Any advice on how to improve method reproducibility?

Method reproducibility is a result of many different variables and it is best practice to conduct multi-batch validations. This allows any unforeseen interactions and method sensitivity to become apparent. Additionally, using newer silica technology columns like Luna Omega C18 that have been optimized for reproducibility will also help to minimize the negative effect of unwanted secondary interactions. For example, here is a demonstration of a multi-batch drug impurity profile.

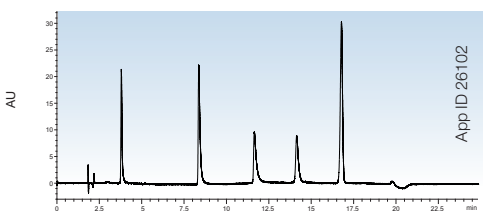
Promethazine HCL and its five organic impurities, reproducibly separated across 3 different batches of Luna Omega 5 µm C18.



Batch A



Batch B



Batch C

Column: Luna Omega 5 µm C18
Dimensions: 250 x 4.6 mm
Part No.: 00G-4785-E0
Mobile Phase: A: Acetonitrile and buffer (3.7 g/L ammonium acetate in water, 300:700)
B: Acetonitrile
Gradient:

Time (min)	% B
0	0
10	40
18	40
18.1	0
25	0

Flow Rate: 1.4 mL/min
Injection Volume: 15 µL
Temperature: 30 °C
Detection: UV @ 249 nm (ambient)

PEAK Reproducibility (batch-to-batch, column-to-column)
By setting a new standard for reliability, the Luna Omega C18 spans UHPLC and HPLC with a scalable range of high-performance particle sizes that will ensure that your developed methods are easily transferred. From single compound identification to complex impurity profiles, the Luna Omega C18 will serve as a pillar for your lab to count on day in and day out.

Comparative separations may not be representative of all applications.

4 Question 4: Are any of the Luna Omega columns suitable for HILIC separations of very polar compounds?

Yes! The Luna Omega SUGAR is comprised of a combined amide polyol/amine-based phase with aqueous stable end-capping to offer enhanced HILIC retention of polar compounds such as sugars and sugar alcohols through multiple interaction mechanisms. Plus Luna Omega SUGAR is tested by HILIC conditions for sugars to ensure it is high quality!

Peak Identification and Respective Resolution Values

	Analyte	Retention Time	USP Resolution
1	Glycerol	6.59	
2	Erythritol	9.31	13.32
3	Xylitol	13.88	16.01
4	Fructose	15.43	3.87
5	Glucose	19.51	6.74
6	Sorbitol	20.26	1.36

	Analyte	Retention Time	USP Resolution
7	Mannitol	20.80	1.69
8	Sucrose	24.58	16.50
9	Maltose	25.58	4.30
10	Maltitol	25.90	1.39
11	Lactose	26.34	2.15
12	Lactitol	26.96	2.94

Chromatogram of 12 Polyols and Simple Sugars with the Luna Omega SUGAR Column

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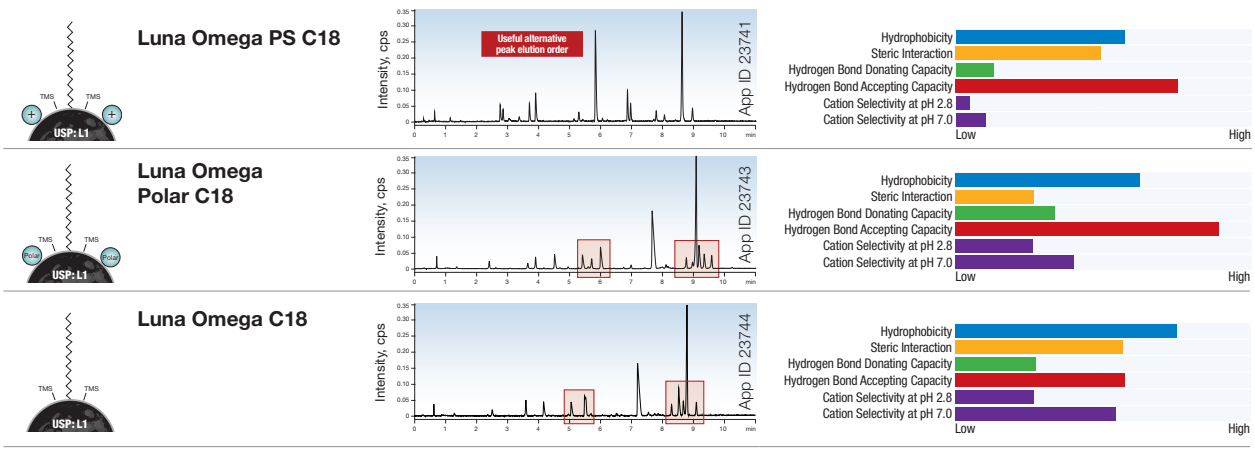
Question 5: What is the difference between Luna Omega C18, Polar C18, and PS C18?

The combination of available Luna Omega stationary phases represent an outstanding tool set for the separation of acids, bases, neutrals or mixtures. Use the C18 to focus on hydrophobic interactions or the multi-interaction functionality of the Polar C18 and PS C18 to get enhanced retention of both polar and non-polar compounds.



Material Characteristics

Phase	Particle Sizes (µm)	Pore Size (Å)	Effective Surface Area (m^2/g)	Effective Carbon Load %	pH Stability	Pressure Stability
Luna Omega PS C18	1.6, 3, 5	100	260	9	1.5 - 8.5*	1,034/345† bar
Luna Omega Polar C18	1.6, 3, 5	100	260	9	1.5 - 8.5*	
Luna Omega C18	1.6, 3, 5	100	260	11	1.5 - 8.5*	

* pH stability under gradient conditions. pH stability is 1.5 - 10 under isocratic conditions.

** 1.6 µm Luna Omega columns are pressure stable up to 1034 bar and 3 or 5 µm are stable up to 345 bar.

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Luna Omega
Ordering Information

1.6 µm Microbore Columns (mm)			
Phases	50 x 1.0	100 x 1.0	150 x 1.0
Polar C18	00B-4748-A0	00D-4748-A0	00F-4748-A0
C18	00B-4742-A0	00D-4742-A0	00F-4742-A0
PS C18	—	00D-4752-A0	—

1.6 µm Minibore Columns (mm)					SecurityGuard™ ULTRA Cartridges
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	3/pk‡
Polar C18	00A-4748-AN	00B-4748-AN	00D-4748-AN	00F-4748-AN	AJ0-9505
PS C18	00A-4752-AN	00B-4752-AN	00D-4752-AN	00F-4752-AN	AJ0-9508
C18	00A-4742-AN	00B-4742-AN	00D-4742-AN	00F-4742-AN	AJ0-9502
					for 2.1 mm ID

3 µm Minibore and MidBore™ Columns (mm)								SecurityGuard Cartridges (mm)
Phases	30 x 2.1	50 x 2.1	100 x 2.1	150 x 2.1	50 x 3.0	100 x 3.0	150 x 3.0	4 x 2.0*
								/10 pk
Polar C18	00A-4760-AN	00B-4760-AN	00D-4760-AN	00F-4760-AN	00B-4760-Y0	00D-4760-Y0	00F-4760-Y0	AJ0-7600
PS C18	00A-4758-AN	00B-4758-AN	00D-4758-AN	00F-4758-AN	00B-4758-Y0	00D-4758-Y0	00F-4758-Y0	AJ0-7605
NEW C18	—	00B-4784-AN	00D-4784-AN	00F-4784-AN	00B-4784-Y0	00D-4784-Y0	00F-4784-Y0	AJ0-7611
SUGAR	—	00B-4775-AN	00D-4775-AN	00F-4775-AN	—	—	00F-4775-Y0	AJ0-4496
								for ID: 2.0-3.0 mm

3 µm Analytical Columns (mm)					SecurityGuard Cartridges (mm)
Phases	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	4 x 3.0*
					/10 pk
Polar C18	00B-4760-E0	00D-4760-E0	00F-4760-E0	00G-4760-E0	AJ0-7601
PS C18	00B-4758-E0	00D-4758-E0	00F-4758-E0	00G-4758-E0	AJ0-7606
NEW C18	00B-4784-E0	00D-4784-E0	00F-4784-E0	00G-4784-E0	AJ0-7612
SUGAR	—	00D-4775-E0	00F-4775-E0	00G-4775-E0	AJ0-4495
					for ID: 3.2-8.0 mm

5 µm Minibore and MidBore Columns (mm)							SecurityGuard Cartridges (mm)
Phases	50 x 2.1	100 x 2.1	150 x 2.1	50 x 3.0	100 x 3.0	150 x 3.0	4 x 2.0*
							/10 pk
Polar C18	00B-4754-AN	00D-4754-AN	00F-4754-AN	00B-4754-Y0	00D-4754-Y0	00F-4754-Y0	AJ0-7600
PS C18	00B-4753-AN	00D-4753-AN	00F-4753-AN	00B-4753-Y0	00D-4753-Y0	00F-4753-Y0	AJ0-7605
							for ID: 2.0 - 3.0 mm

5 µm Analytical Columns (mm)					SecurityGuard Cartridges (mm)
Phases	50 x 4.6	100 x 4.6	150 x 4.6	250 x 4.6	4 x 3.0*
					/10 pk
Polar C18	00B-4754-E0	00D-4754-E0	00F-4754-E0	00G-4754-E0	AJ0-7601
PS C18	00B-4753-E0	00D-4753-E0	00F-4753-E0	00G-4753-E0	AJ0-7606
NEW C18	00B-4785-E0	00D-4785-E0	00F-4785-E0	00G-4785-E0	AJ0-7612
					for ID: 3.2-8.0 mm

‡ SecurityGuard ULTRA Cartridges require holder, Part No.: AJ0-9000

* SecurityGuard Standard Analytical Cartridges require holder, Part No.: KJ0-4282

Now Available!
Micro 0.3 & 0.5 mm ID Luna Omega columns

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Offers valid only for addressee. Offers must be specified at time of order and cannot be combined with any other discount or promotional item. All discounts valid for Luna Omega C18 and Kinetex C18 columns only. Discount excludes accessories, columns > 10 mm ID, and custom columns. Subject to Phenomenex standard terms & conditions, which may be viewed at www.phenomenex.com/TermsAndConditions.

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SecurityGuard is patented by Phenomenex. U.S. Patent No. 6,162,362.
CAUTION: this patent only applies to the analytical-sized guard cartridge holder, and does not apply to SemiPrep, PREP or ULTRA holders, or to any cartridges.

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