

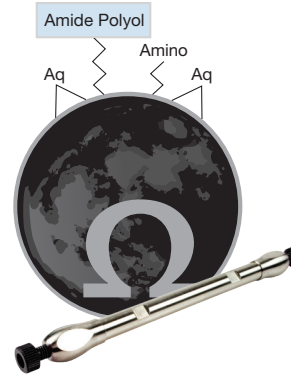
APPLICATIONS

Separation of 12 Polyols and Simple Sugars using the Luna[®] Omega SUGAR HPLC/UHPLC Column – A Novel HILIC Stationary Phase

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Overview

The Luna Omega SUGAR column is a fully porous thermally modified silica-based HPLC/UHPLC column with an amide polyol/amine-based phase and aqueous stable end-capping. A 3µm 250 x 4.6mm column dimension was used for the separation of 12 polyols and simple sugars to illustrate the polar selectivity of the Luna Omega SUGAR column. The retention mechanism of hydrophilic interaction chromatography (HILIC) is dependent on the establishment of an aqueous-rich layer on the surface of the column's stationary phase. Therefore, before sample injection special attention was given to the initial conditioning and equilibration of the column. A new Luna Omega SUGAR column was initially conditioned by isocratically flushing it with a flow rate of 1.0 mL/min for 20 minutes with a 50:50 mixture of water with 10 mM ammonium acetate and acetonitrile. This initial conditioning propagated a reproducible aqueous-rich layer which promotes a consistent retention mechanism for HILIC separations. After conditioning, the column was equilibrated with the starting gradient conditions for 15 minutes at a flow rate of 1.0 mL/min.



Novel nitrogen containing stationary phase that greatly increases the retention of sugars and sugar alcohols under HILIC conditions

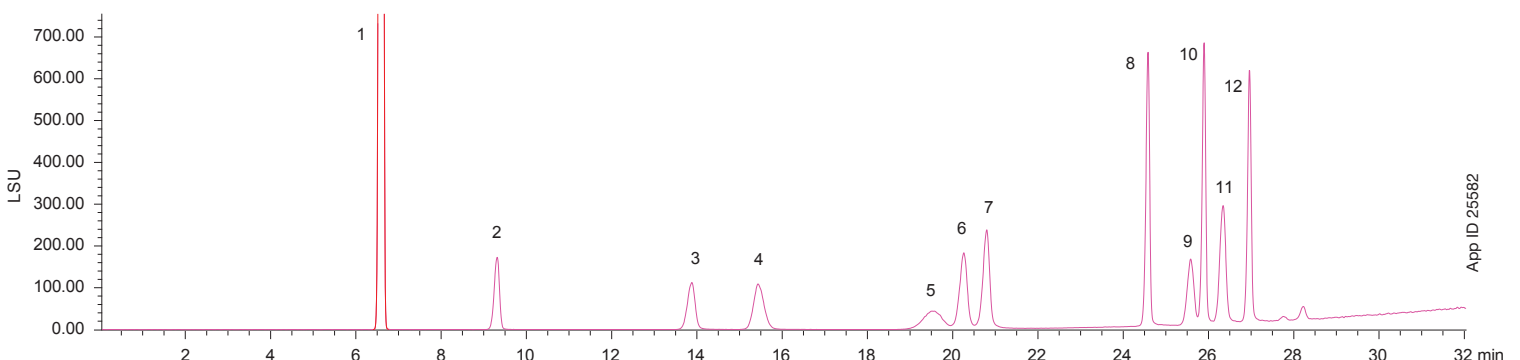
LC Conditions

Column: Luna Omega 3µm Sugar	Flow Rate: 1.0 mL/min
Dimensions: 250 x 4.6 mm	Injection Volume: 6 µL (2 mg/mL)
Part No.: 00G-4775-EO	Temperature: 40 °C
Mobile Phase: A: Water with 10 mM Ammonium Acetate (pH 6.4)	Detector: ELSD (45 psi, 50 °C)
B: Acetonitrile	Sample: 1. Glycerol
Gradient:	2. Erythritol
Time (min) % B	3. Xylitol
0 87	4. Fructose
0.5 87	5. Glucose
15 87	6. Sorbitol
30 50	7. Mannitol
35 50	8. Sucrose
36 87	9. Maltose
40 87	10. Maltitol
	11. Lactose
	12. Lactitol

Table 1.
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
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

Figure 1.
Chromatogram of 12 Polyols and Simple Sugars with the Luna Omega SUGAR Column.



APPLICATIONS

Ordering Information

Luna[®] Omega Sugar

3 µm Minibore Columns (mm)			SecurityGuard [™] Cartridges (mm)	
Phases	50 x 2.1	100 x 2.1	150 x 2.1	4 x 2.0*
SUGAR	00B-4775-AN	00D-4775-AN	00F-4775-AN	AJ0-4496

for ID: 2.0-3.0 mm

3 µm MidBore [™] Columns (mm)		SecurityGuard Cartridges (mm)
Phases	150 x 3.0	4 x 2.0*
SUGAR	00F-4775-Y0	AJ0-4496

for ID: 2.0-3.0 mm

3 µm Analytical Columns (mm)				SecurityGuard Cartridges (mm)
Phases	100 x 4.6	150 x 4.6	250 x 4.6	4 x 3.0*
SUGAR	00D-4775-E0	00F-4775-E0	00G-4775-E0	AJ0-4495

for ID: 3.2-8.0 mm

* SecurityGuard Standard Analytical Cartridges require holder, Part No.: [KJ0-4282](#)

References

1. S. M. Melnikov, A. Hoeltzel, A. S. Morgenstern, U. Tallarek.; J. Phys. Chem. C; 119, 2015, 512-523.

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Separations may not be representative of all applications.

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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