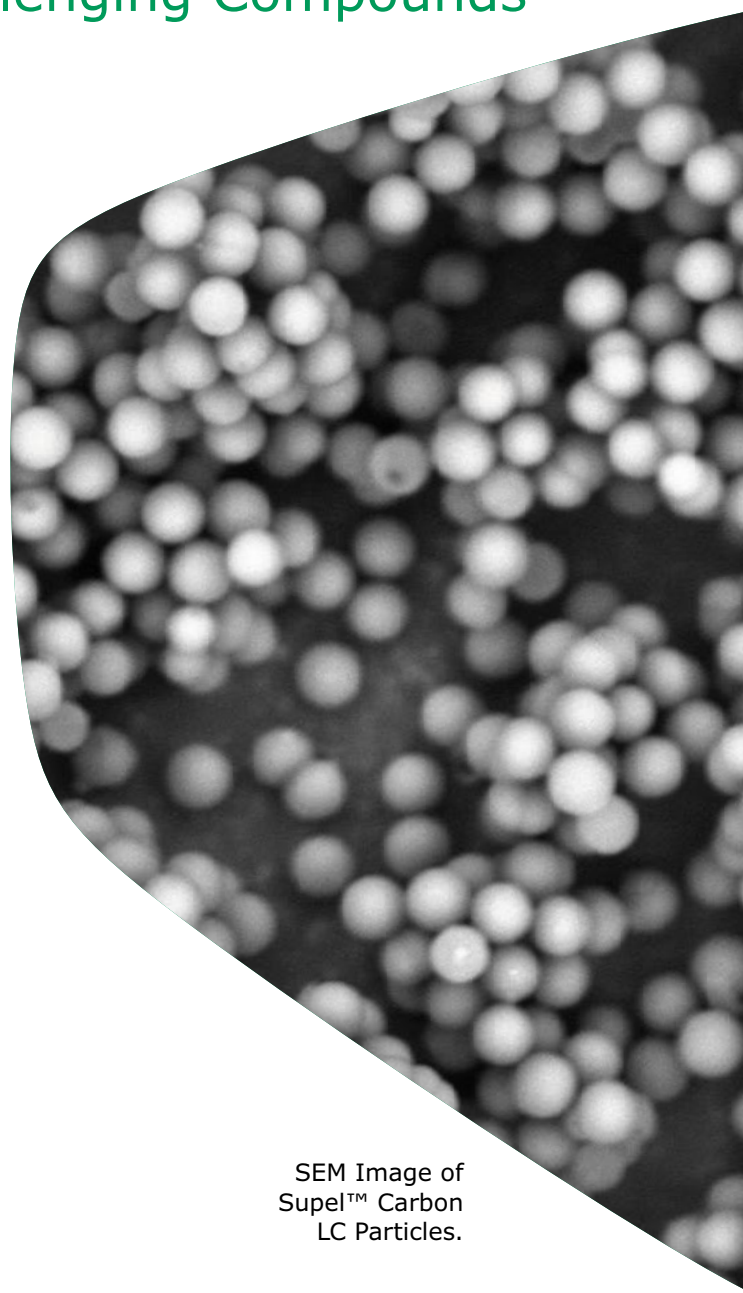
Supelco®
Analytical Products

MilliporeSigma

Supel™ Carbon LC Capillary UHPLC Columns – Superior Separation of Challenging Compounds at the Capillary Scale

Supel™ Carbon LC particles offer a unique retention mechanism that can retain polar compounds under reversed-phase conditions. This same retention mechanism can also lead to resolution of geometric isomers of compounds. Now offered in 1 mm and 300 µm I.D.'s, the capillary Supel™ Carbon LC column is an excellent choice for those applications requiring high sensitivity, including biomarker analysis, glycan analysis, and "omics" workflows.



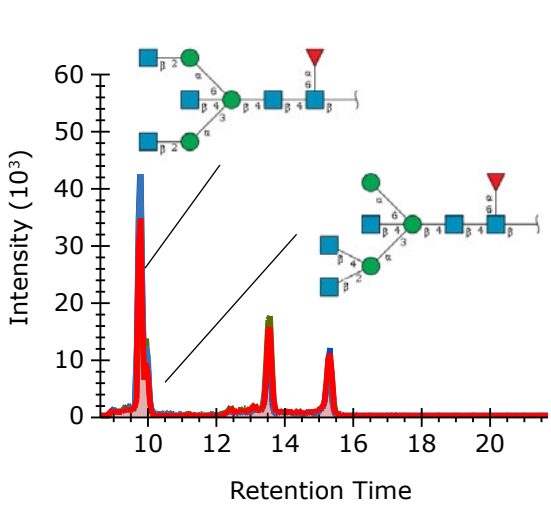
SEM Image of Supel™ Carbon LC Particles.

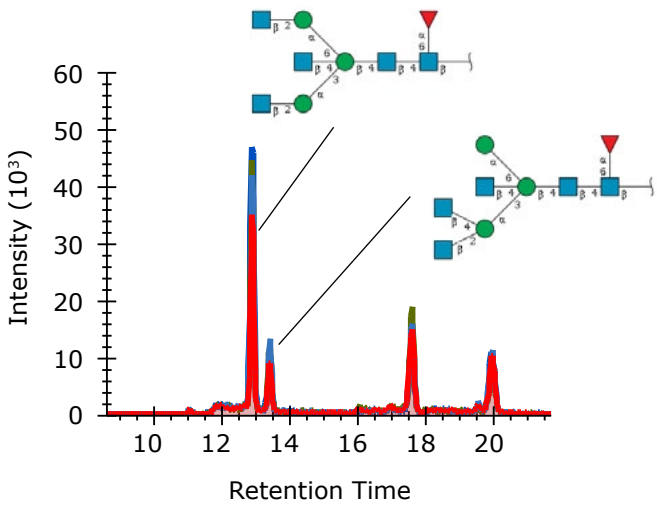
Supel™ Carbon LC Specifications

Particle Platform	Porous Graphitic Carbon (PGC)
Particle Size	2.7 µm
Pore Size	200 Å
Surface Area	155 m^2/g
pH Range	1 - 14
Maximum Temperature	250 °C

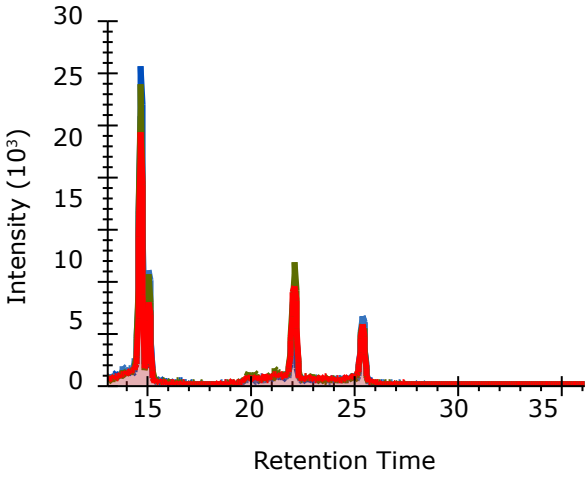
PGC Column 1 | **Supel™ Carbon LC Column**

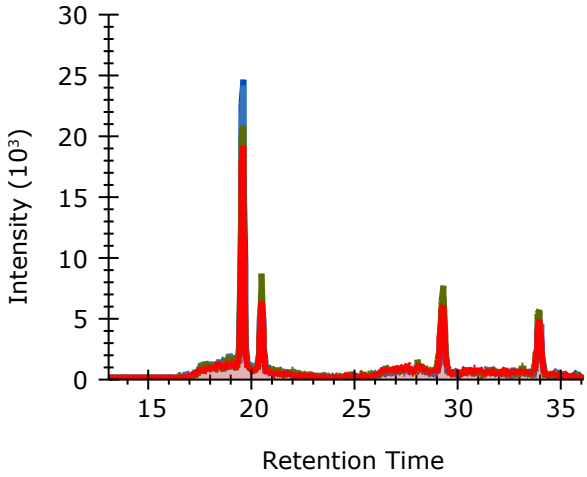
30 min gradient



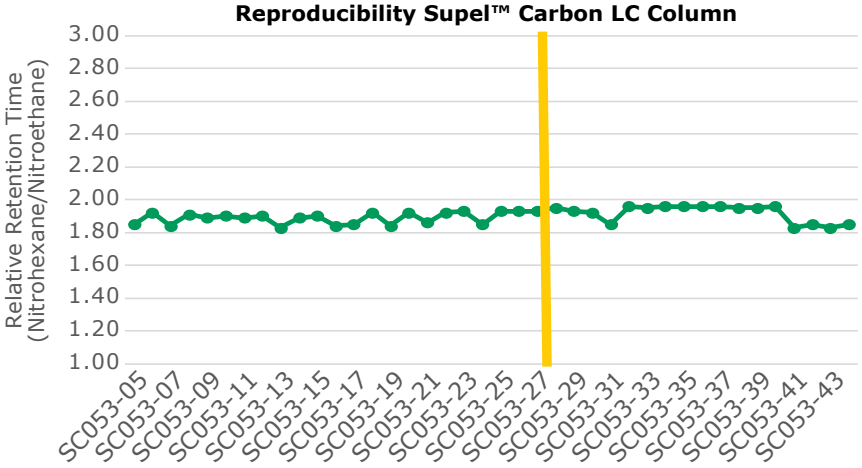


60 min gradient

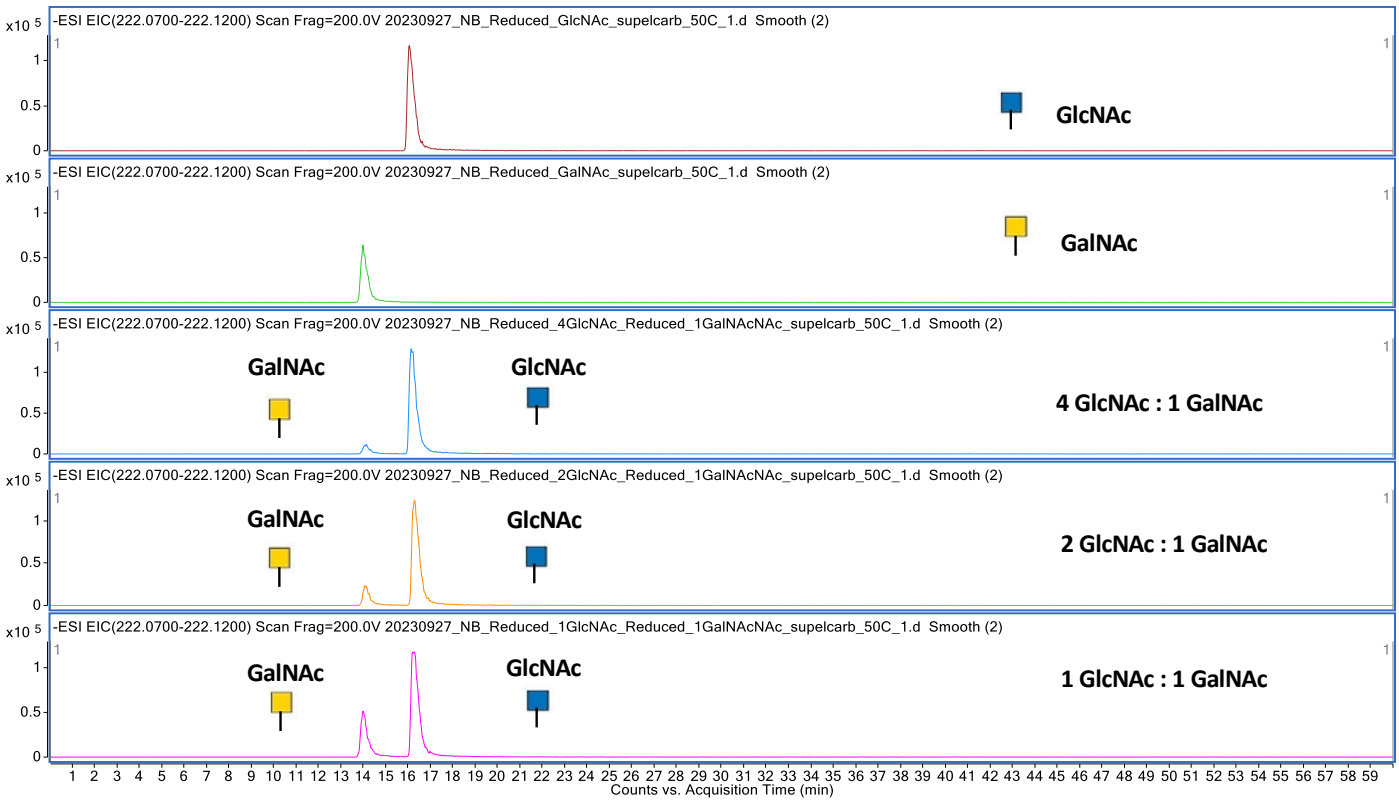




The above application illustrates the shape selective nature of PGC, and how not all PGC columns are similar. On PGC Column 1, even with a 60 minute gradient, two glycan isomers cannot be resolved, whereas on a Supel™ Carbon LC column, a quicker 30 minute gradient enables baseline separation. Data courtesy of Dr. Christopher Ashwood, Beth Israel Deaconess Medical Center, Harvard University.



The capillary Supel™ Carbon LC column demonstrates remarkable reproducibility between columns and lots. RRT relative standard deviation (RSD) was calculated to be only 2.4% between two lots of stationary phase, and the intercolumn RRT RSD was determined to be only 2.2% and 0.6% for lots 1 and 2, respectively. Yellow bar divides columns from Lot 1 and Lot 2.



The above figure demonstrates, for the first time, the separation of underivatized monosaccharide structural isomers on a Supel™ Carbon LC column. Previously, derivatization procedures would have been required in order to obtain retention of the sugar species. The unique selectivity of PGC, combined with the patented, synthetic procedure of Supel™ Carbon LC columns, permits this analysis without derivatization, simplifying workflows for biomarker identification, glycomics, and sugar analysis, in general. Data courtesy of Dr. Morten Thaysen-Andersen, Macquarie University.

LC Conditions			
Instrument:	Agilent 1260 HPLC		
Column:	Supel™ Carbon LC, 150 x 1.0 mm I.D., 2.7 µm		
Mobile phase:	"[A] 10 mM ammonium bicarbonate in water, pH 8.0 [B] 10 mM ammonium bicarbonate in 70% acetonitrile"		
Gradient:	Time (min)	A%	B%
	0	97	3
	15	97	3
	26	94	6
	28	0	100
	40	0	100
	42	100	0
	60	100	0
Flow rate:	20 µL/min		
Pressure:	86 bar (at 97% [A])		
Column temp.:	50 °C		
Detector:	MSD, Q-ToF		
Injection:	1.0 µL		
Sample(s):	GalNAc, GlcNAc (reduced and non-reduced forms, equivalent to 1.8 nmol for both reduced and non-reduced GlcNAc and GalNAc or dilution thereof of GalNAc for the mixtures)		
MS Conditions			
Instrument:	Agilent 6538 UHD Accurate Mass Q-ToF LC-MS System		
Polarity:	ESI (-)		
Spray voltage:	4,300 V		
Capillary temp:	300 °C		
Sheath gas:	20 psi		
Aux. gas:	3.5 L/min		
m/z range:	150 - 2200		

Product Listing

Description	Length (mm)	I.D. (mm)	Cat. No.
Supel™ Carbon LC, 50 x 1.0 mm I.D., 2.7 µm	50	1	**59975-U**
Supel™ Carbon LC, 150 x 1.0 mm I.D., 2.7 µm	150	1	**59978-U**
Supel™ Carbon LC, 50 x 0.3 mm I.D., 2.7 µm	50	0.3	**59977-U**
Supel™ Carbon LC, 150 x 0.3 mm I.D., 2.7 µm	150	0.3	**59980-U**

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