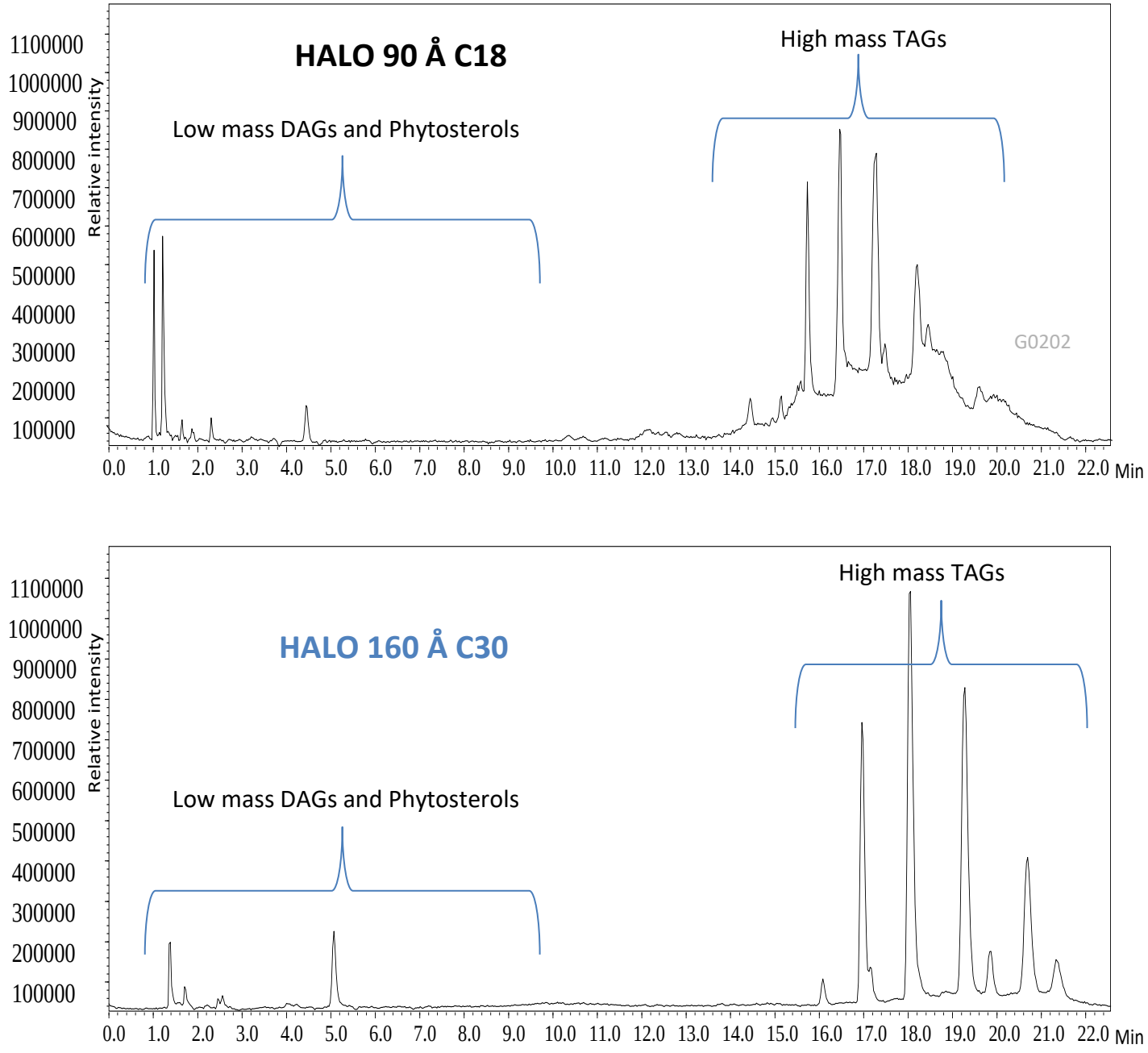
Application Note: 208-LI

LC-MS Separation of Corn Oil on HALO® C30 Compared to HALO® C18



DAGs = diacylglycerols or diglycerides
TAGs = triacylglycerols or triglycerides

LC TEST CONDITIONS:

Columns: HALO 90 Å C18, 2.7 µm, 2.1 x 150 mm
Part Number: 92812-702
Columns: HALO 160 Å C30, 2.7 µm, 2.1 x 150 mm
Part Number: 92112-730
Mobile Phase A: Methanol
Mobile Phase B: IPA/0.1% Formic acid

Gradient:

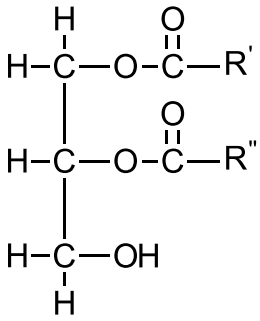
Time	%B
0.00	10
10.00	10
14.00	40
22.00	40
22.01	10
24.00	END

Flow Rate: 0.3 mL/min
Initial Pressure: 325 bar
Temperature: Ambient
Injection Volume: 2 µL
Sample Solvent: MeOH
LC System: Shimadzu Nexera X2

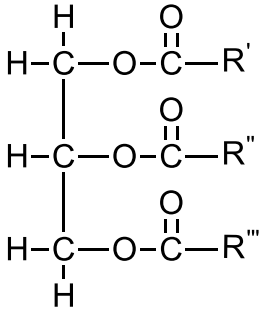
MS TEST CONDITIONS:

MS system: Shimadzu LCMS-2020
Ionization: +ESI
Spray voltage: 4.50 kV
Drying line temp: 300 °C
Heat Block: 450 °C

STRUCTURES:



DAGs



TAGs

Corn oil, composed mainly of long chain fatty acids and esters, is an edible oil which comprises approximately 5-10% of edible oil consumption. In recent years, corn oil has been used in biodiesel, pharmaceutical, and cosmetic applications as well. The use of a C18 column for the analysis of edible oils is difficult due to the high concentration of hydrophobic triglycerides (TAGs); therefore, the C30 phase has seen increased application in this area. Here we show a comparison between the C18 and C30 phase, and demonstrate that the 2.7 µm HALO C30 is an ideal choice for the separation and resolution of high mass triglycerides found in edible oils such as corn oil. C30 offers superior specificity compared to C18 columns by exhibiting higher shape selectivity, enabling better separation of hydrophobic, long-chain, structures.