

PLGA 50L-S Standard Data Sheet

Product Name: Poly (D,L Lactide-co-Glycolide) 50:50 LA:GA, low molecular weight (ester endcap) (Lot #180329RAI-A)



GPC-Quadruple Detector Analysis

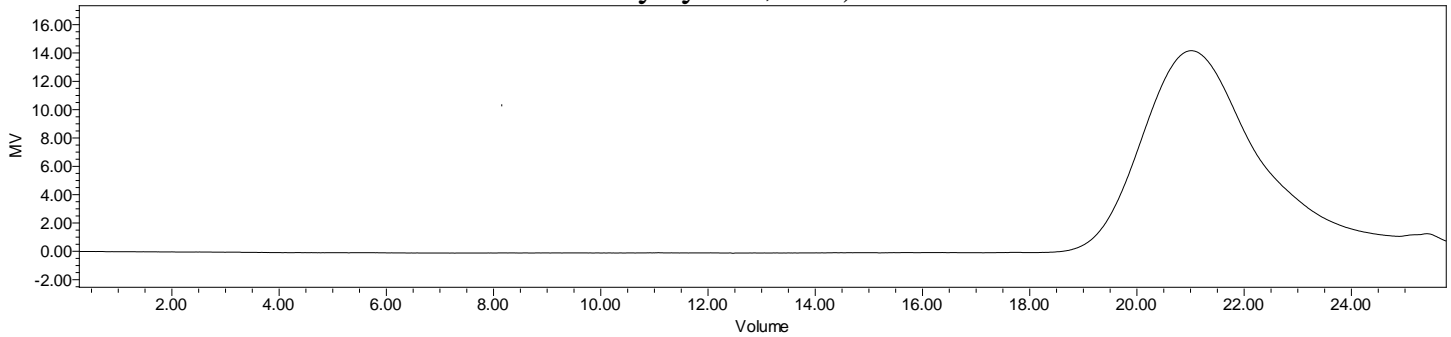
Instrument: Agilent 1260 Infinity II system connected to Dawn Heleos II (MALLS) coupled to Dynapro Nanostar DLS by optical cable, Optilab T-rEX (RI detector) and Viscostar III viscometer operated by Astra 7 software used for GPC analysis.

Method: 100 ul of 2.0 mg/ml solution. Mobile phase consisted of Acetone at 0.6 ml/min flow across a linear gradient column (cat# TSKgel GMHhr-L, Tosoh Bioscience LLC).

GPC-Quadruple Detector Results Table			
Value	Description	Average	Uncertainty
Mn (Da)	Number average Molecular weight	5,834	±3.332%
Mp (Da)	Peak molecular weight	11,990	±0.458%
Mv (Da)	Viscosity average molecular weight	7,627	±0.064%
Mw (Da)	Weight average molecular weight	8,303	±1.101%
Mz (Da)	Z-average molecular weight	10,890	±1.817%
Polydispersity (Mw/Mn)	Distribution of molecular mass	1.423	±3.509%
rn (nm)	Number-average mean square radius	18.8	±40.2%
rw (nm)	Weight-average mean square radius	8.6	±112.9%
rz (nm)	Z average radius	n/a	
r(avg) (nm)	Average mean square radius	15.1	±3.7%
rh(v)n (nm)	Number-average hydrodynamic radius	2.099	±0.857
rh(v)w (nm)	Weight-avg mean hydrodynamic radius	2.538	±0.485
rh(v)z (nm)	Z-average hydrodynamic radius	2.952	±0.294%
rh(v)(avg)	Average hydrodynamic radius	3.052	±0.014%
[η]n (mL/g)	Number-average intrinsic viscosity	10.985	±0.409
[η]w (mL/g)	Weight-average intrinsic viscosity	13.48	±0.23%
[η]z (mL/g)	Z-average intrinsic viscosity	15.740	±0.164%
dn/dc	Refractive index increment	0.0977	
MHS Intercept (K)	Mark-Houwink constant "K"	1.900x10 ⁻¹ mL/g	±0.152%
MHS slope(a)	Mark-Houwink constant alpha	0.479	±0.034%

GPC-External Standard Analysis

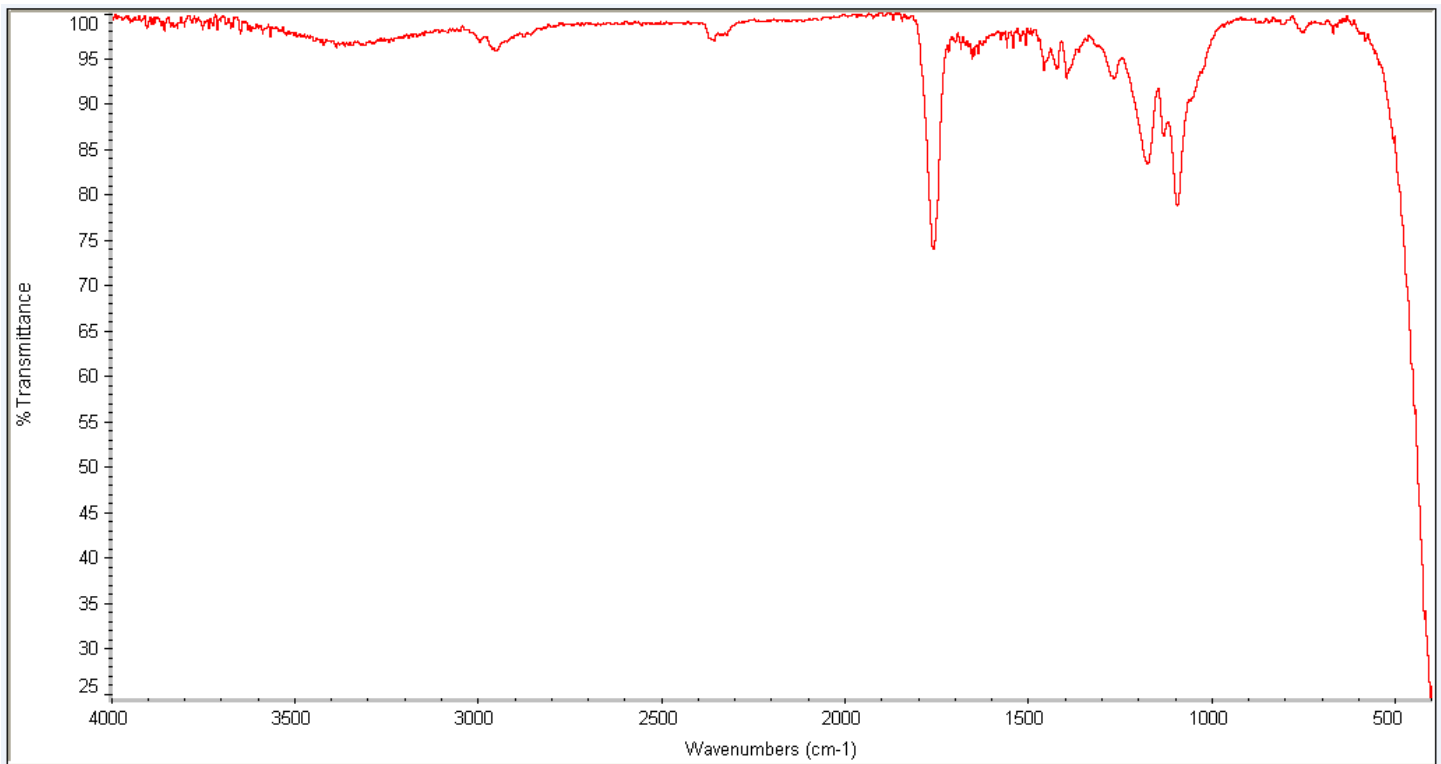
GPC Analysis Method: Waters Breeze 2 system with 1 ml/min THF flow across three GPC columns. Detection via refractive index, calibrated against polystyrene standards (Agilent Polystyrene, PS2).



M_n (from GPC)	M_w (from GPC)	PDI
8,415	12,523	1.49

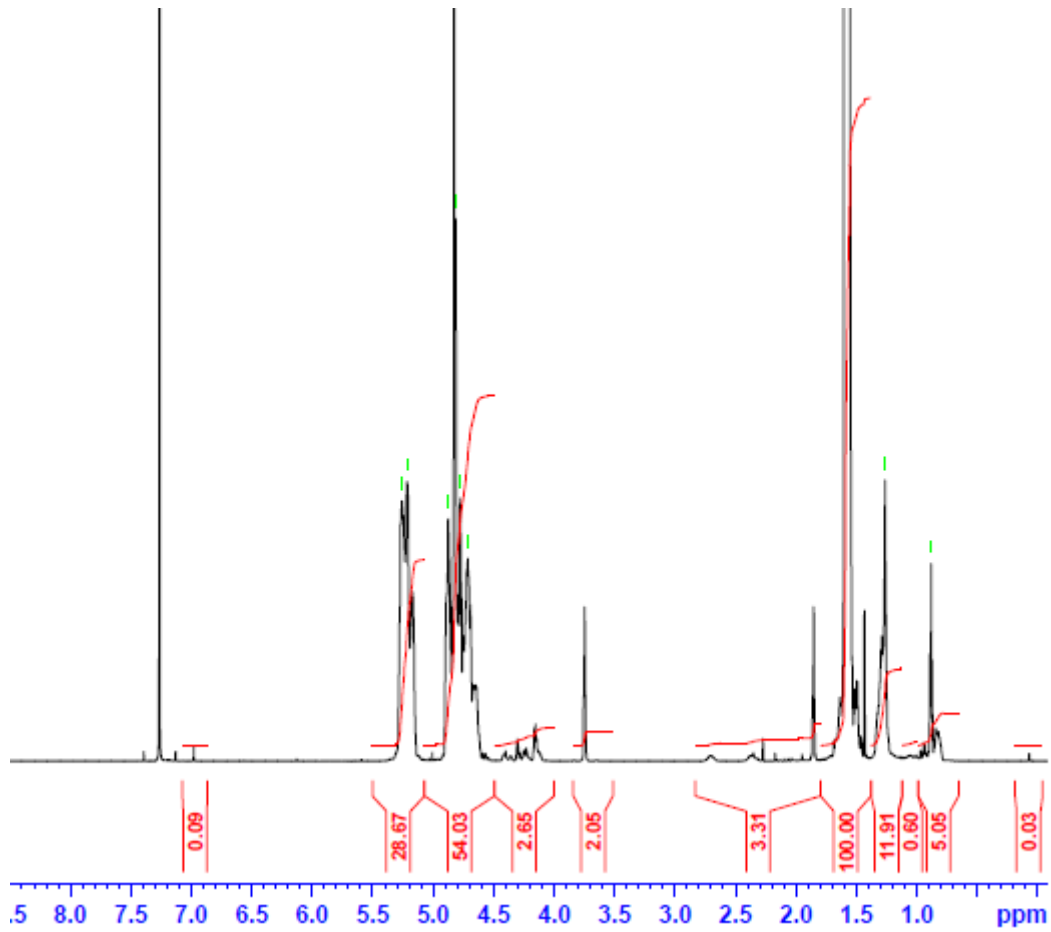
FTIR Analysis

Analysis Method: Collected from cast-film on KBr salt-plate placed in Nicolet Avatar 320 spectrometer and analyzed in transmission mode.



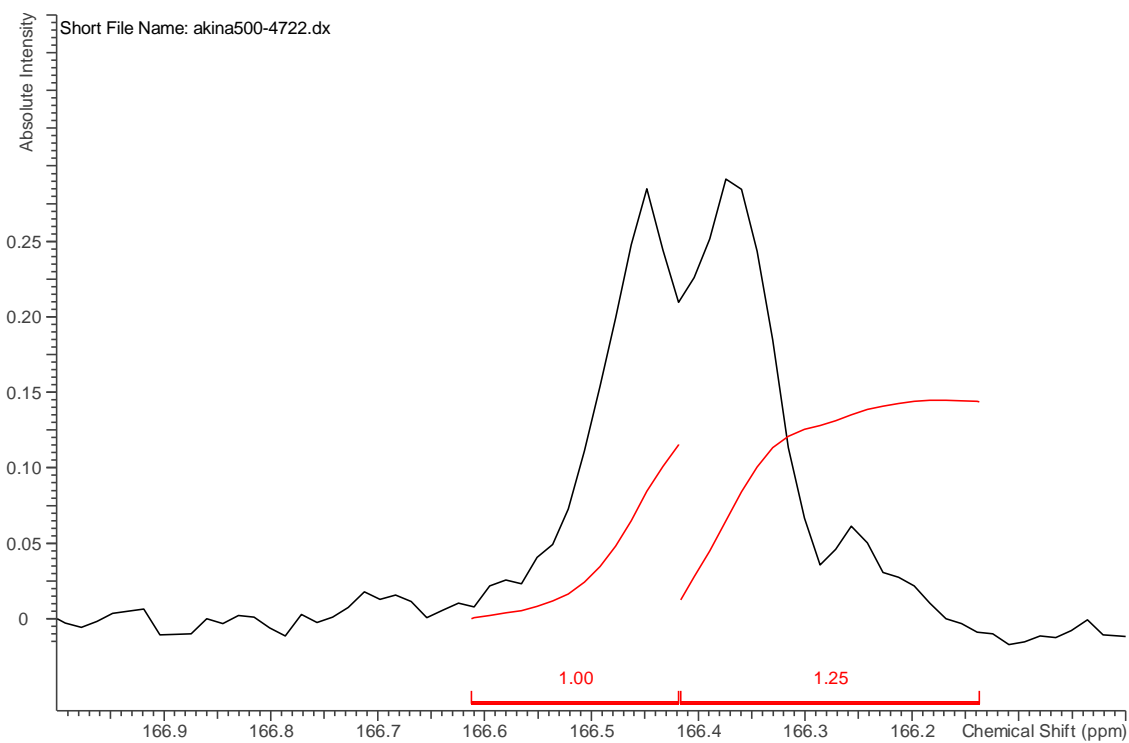
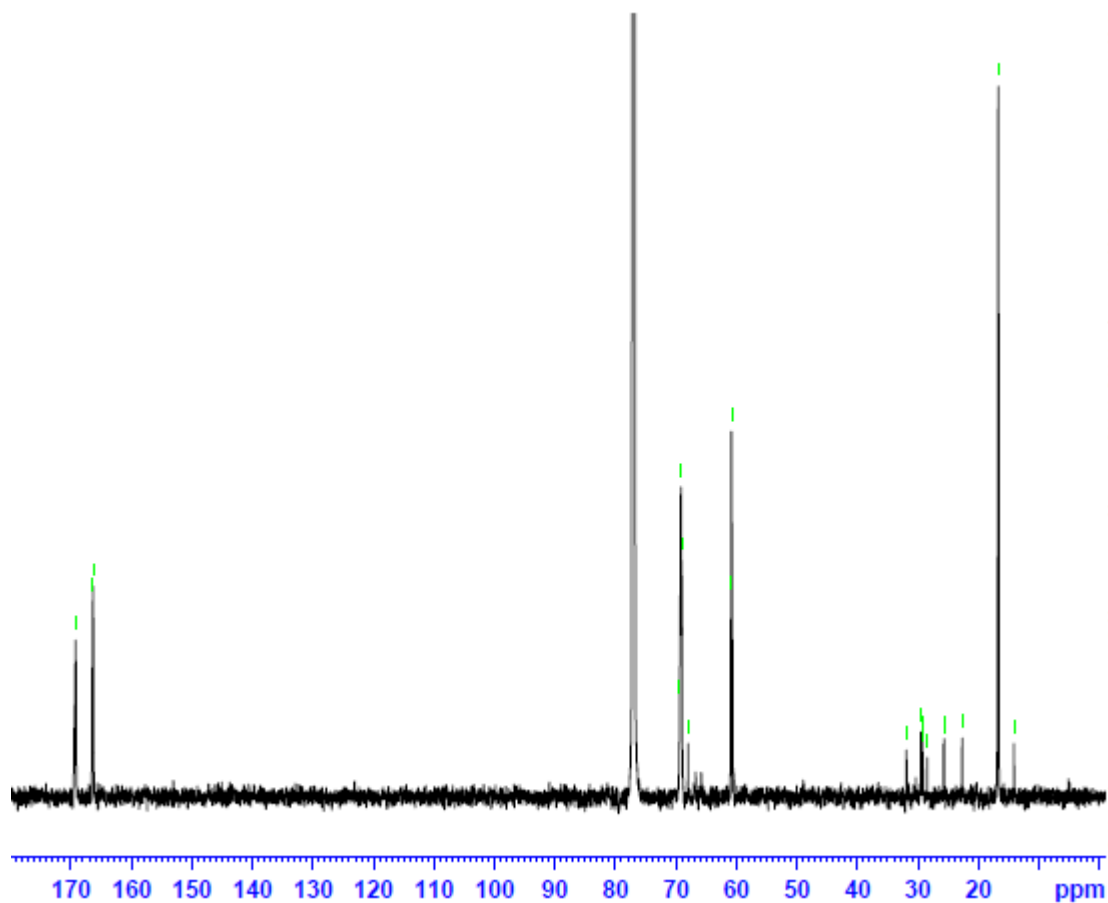
NMR Analysis

H-NMR Spectrum of copolymers in CDCl₃ (Varian Inova 500 MHz instrument) NMR of PLGA copolymer.



LA:GA molar ratio by HNMR: 51:49 molar (LA:GA weight ratio by HNMR 57:43 w:w)

C13NMR Spectrum of copolymers in CDCl3 (Varian Inova 500 MHz instrument)



C13NMR Rcms = 0.80

(Method: downfield carbonyl peak LA-GA divided by upfield carbonyl peak GA-GA in 166-167 ppm region)