PLGA 50L-H Standard Data Sheet

Product Name: Poly (D,L Lactide-co-Glycolide) 50:50 LA:GA high molecular weight (acid endcap) (Lot #190314RAI-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 tRex (RI detector) and Viscostar III viscometer operated by Astra 7 software used for GPC analysis.

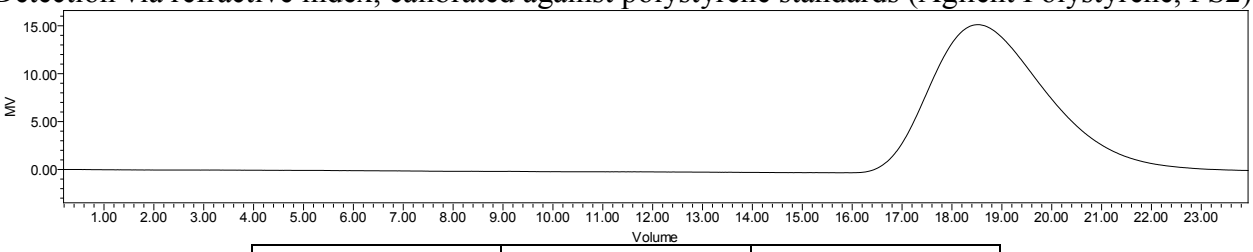
Method: 50 µl of 2.555 mg/ml solution injected in triplicate. Mobile phase consists of Acetone at 0.6 ml/min flow across a linear gradient column (cat# TSKgel GMHhr-L, Tosoh Bioscience LLC).

GPC-Quadruple Detector Results Table

Value	Description	Average	Uncertainty
Mn (Da)	Number average Molecular weight	42,620	±1.173%
Mp (Da)	Peak molecular weight	54,850	±0.440%
Mv (Da)	Viscosity average molecular weight	50,000	±0.061%
Mw (Da)	Weight average molecular weight	52,530	±0.652%
Mz (Da)	Z-average molecular weight	64,490	±1.275%
Polydispersity (Mw/Mn)	Distribution of molecular mass	1.232	±1.342%
rn (nm)	Number-average mean square radius	n/a	
rw (nm)	Weight-average mean square radius	n/a	
r(avg) (nm)	Average mean square radius	8.8	±5.5%
rh(v)n (nm)	Number-average hydrodynamic radius	n/a	±
rh(v)w (nm)	Weight-avg mean hydrodynamic radius	n/a	±
rh(v)z (nm)	Z-average hydrodynamic radius	n/a	±
Rh(v)(avg)	Average hydrodynamic radius	n/a	±
[η]n (mL/g)	Number-average intrinsic viscosity	37.926	±0.037%
[η]w (mL/g)	Weight-average intrinsic viscosity	42.13	±0.03%
[η]z (mL/g)	Z-average intrinsic viscosity	46.949	±0.028%
dn/dc	Refractive index increment	0.0977	
MHS Intercept (K)	Mark-Houwink constant "K"	1.323×10^{-1}	±0.066%
MHS slope(a)	Mark-Houwink constant alpha	0.532	±0.011%

GPC-External Standard

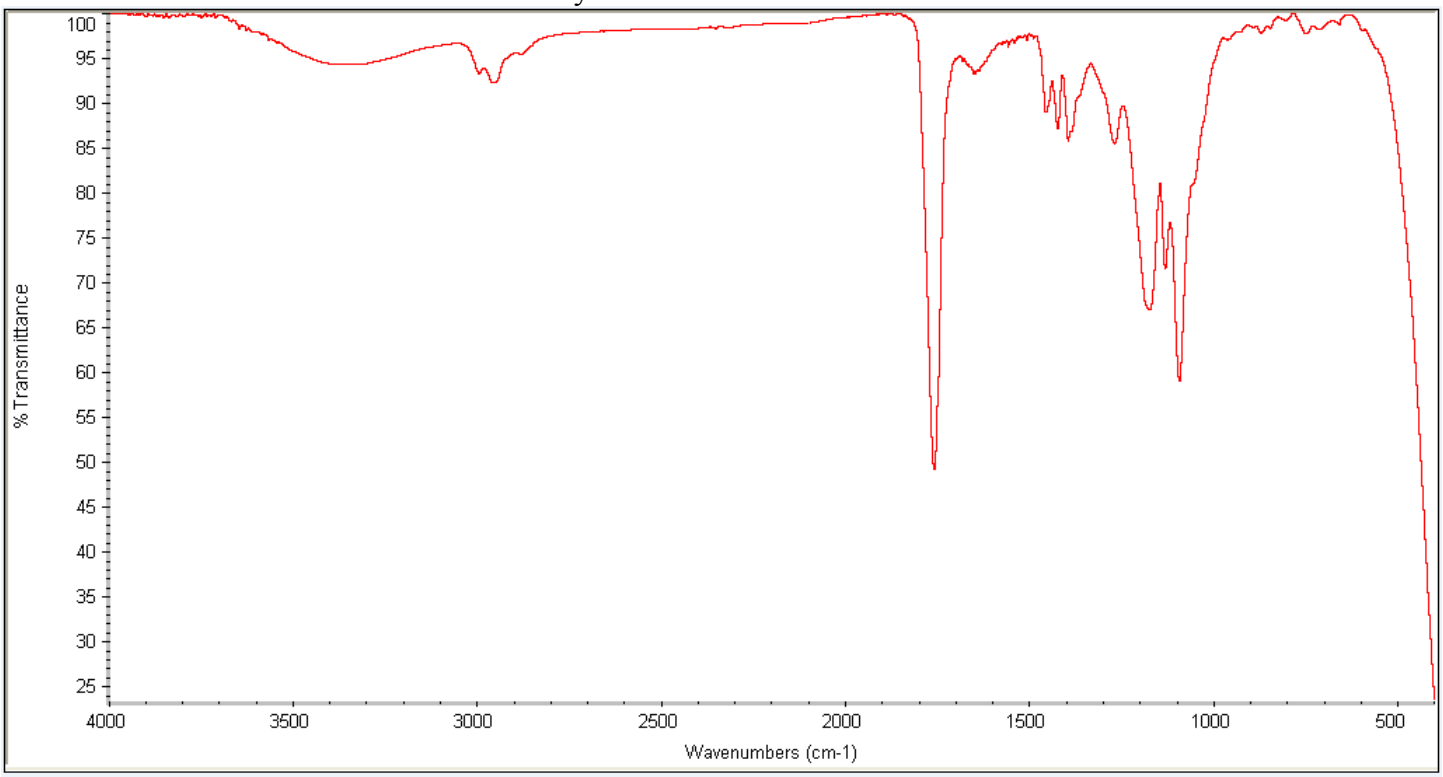
GPC Analysis Method: Waters Breeze 2 system with 1 ml/min THF flow across three GPC columns. Detection via refractive index, calibrated against polystyrene standards (Agilent Polystyrene, PS2).



M_n (from GPC)	M_w (from GPC)	PDI
53,421	66,558	1.25

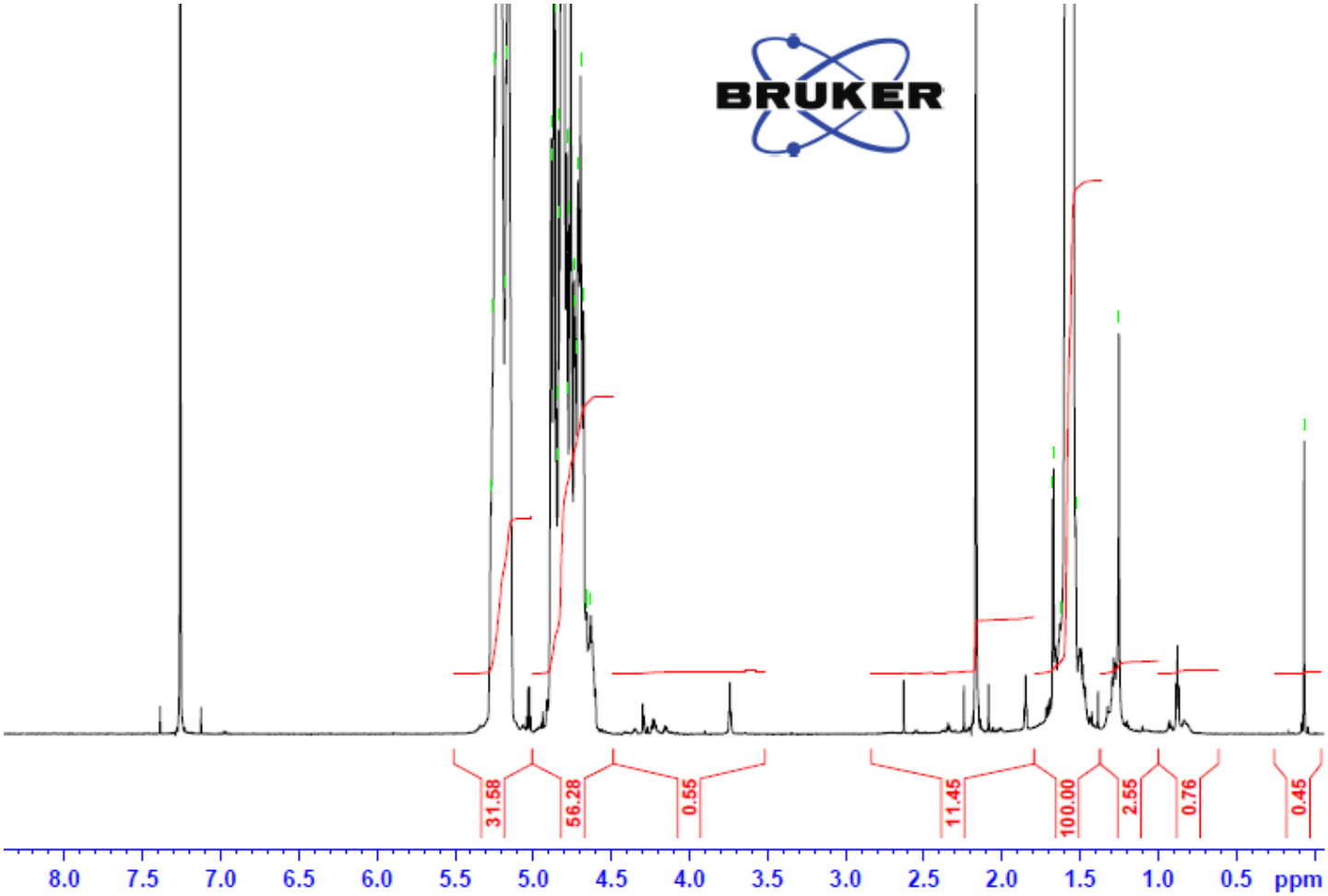
FTIR Analysis

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



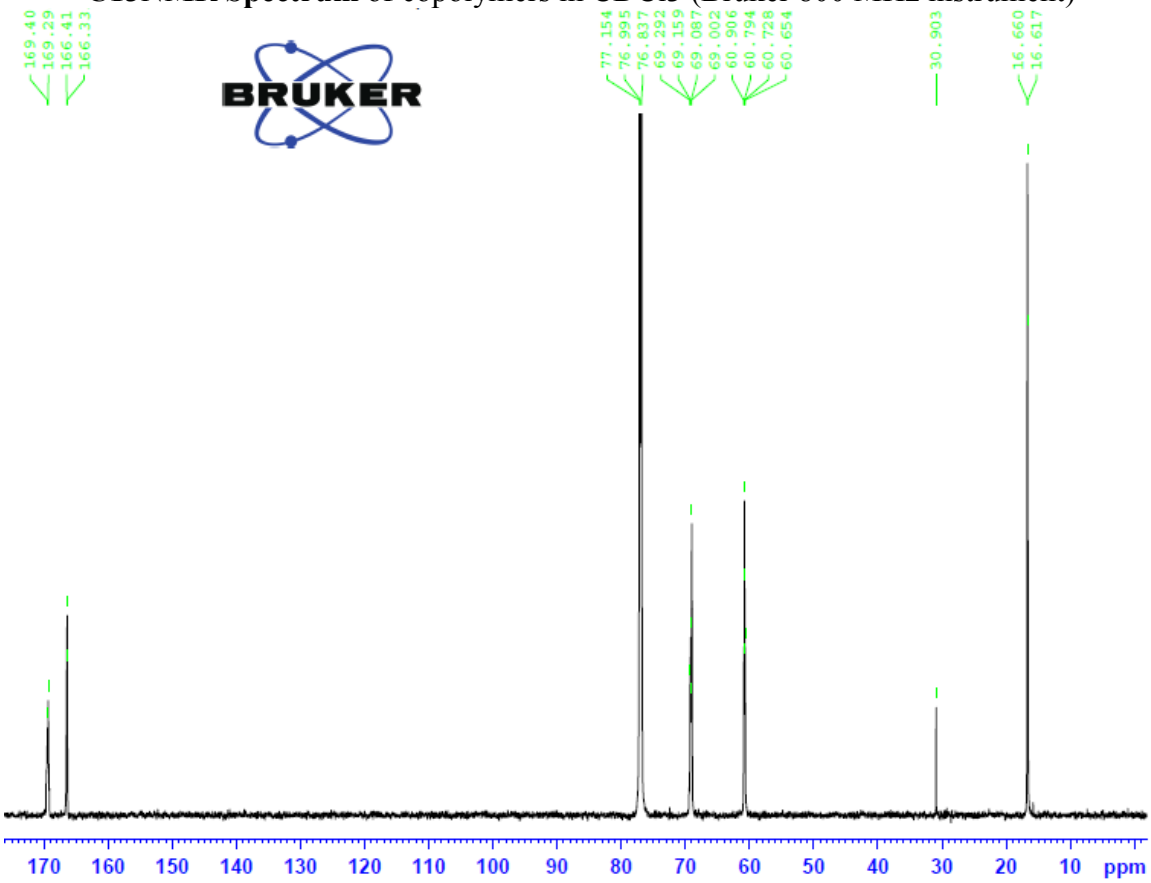
NMR Analysis

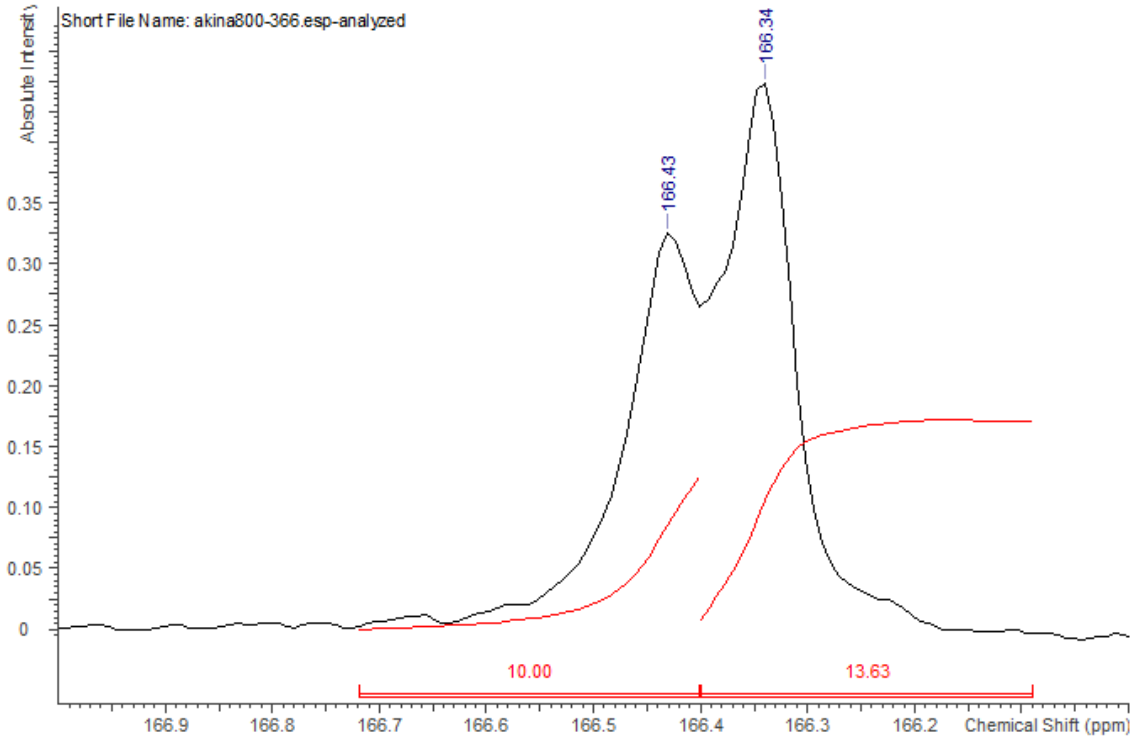
H-NMR Spectrum of copolymers in CDCl3 (Bruker 800 MHz instrument) of PLGA copolymers



LA:GA molar ratio by HNMR: 53:47 molar (LA:GA weight ratio by HNMR 58:42 w:w)

C13NMR Spectrum of copolymers in CDCl3 (Bruker 800 MHz instrument)





C13NMR Rcms = 0.73

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