

# PLGA 50L-M Standard Data Sheet

Product Name: Poly (D,L Lactide-co-Glycolide) 50:50 LA:GA, medium molecular weight (ester endcap) (Lot #180406RAI-A)



## GPC-Quadruple Detector Analysis

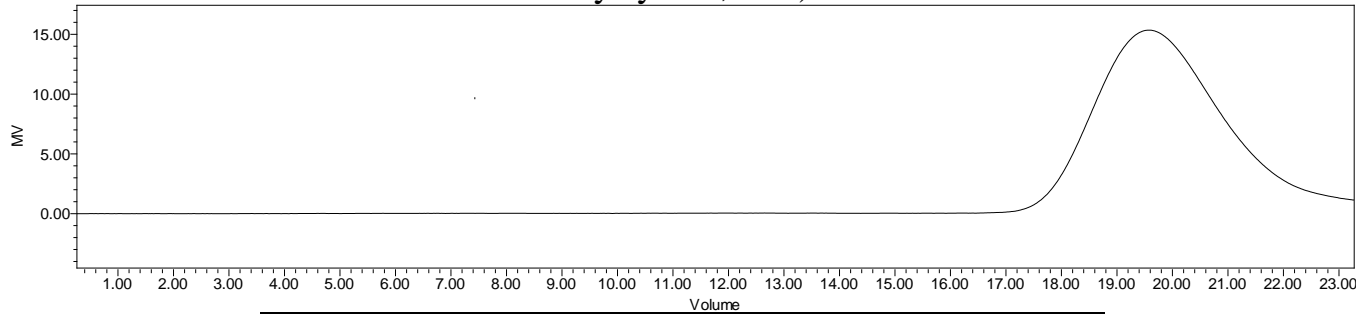
**Instrument:** Agilent 1260 Infinity II system connected to Dawn Heleos II (MALLS) coupled to Dynapro Nanostar DLS by optical cable, Optilab T-rEX (RI detector) and Viscostar III viscometer operated by Astra 7 software used for GPC analysis.

**Method:** 100  $\mu$ l 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).

<b>GPC-Quadruple Detector Results Table</b>			
<b>Value</b>	<b>Description</b>	<b>Average</b>	<b>Uncertainty</b>
Mn (Da)	Number average Molecular weight	16,280	$\pm 1.109\%$
Mp (Da)	Peak molecular weight	31,950	$\pm 0.127\%$
Mv (Da)	Viscosity average molecular weight	21,600	$\pm 0.02\%$
Mw (Da)	Weight average molecular weight	23,790	$\pm 0.277\%$
Mz (Da)	Z-average molecular weight	29,700	$\pm 0.540\%$
Polydispersity (Mw/Mn)	Distribution of molecular mass	1.461	$\pm 1.144\%$
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	9.5	$\pm 6.2\%$
rh(v)n (nm)	Number-average hydrodynamic radius	3.621	$\pm 0.264\%$
rh(v)w (nm)	Weight-avg mean hydrodynamic radius	4.442	$\pm 0.125\%$
rh(v)z (nm)	Z-average hydrodynamic radius	5.008	$\pm 0.087\%$
rh(v)(avg)	Average hydrodynamic radius	4.656	$\pm 0.005\%$
$[\eta]_n$ (mL/g)	Number-average intrinsic viscosity	20.630	$\pm 0.264\%$
$[\eta]_w$ (mL/g)	Weight-average intrinsic viscosity	25.02	$\pm 0.12\%$
$[\eta]_z$ (mL/g)	Z-average intrinsic viscosity	27.803	$\pm 0.076\%$
dn/dc	Refractive index increment	0.0977	
MHS Intercept (K)	Mark-Houwink constant "K"	$7.072 \times 10^{-1}$ mL/g	$\pm 0.111\%$
MHS slope(a)	Mark-Houwink constant alpha	0.360	$\pm 0.030\%$

### GPC-External Standard

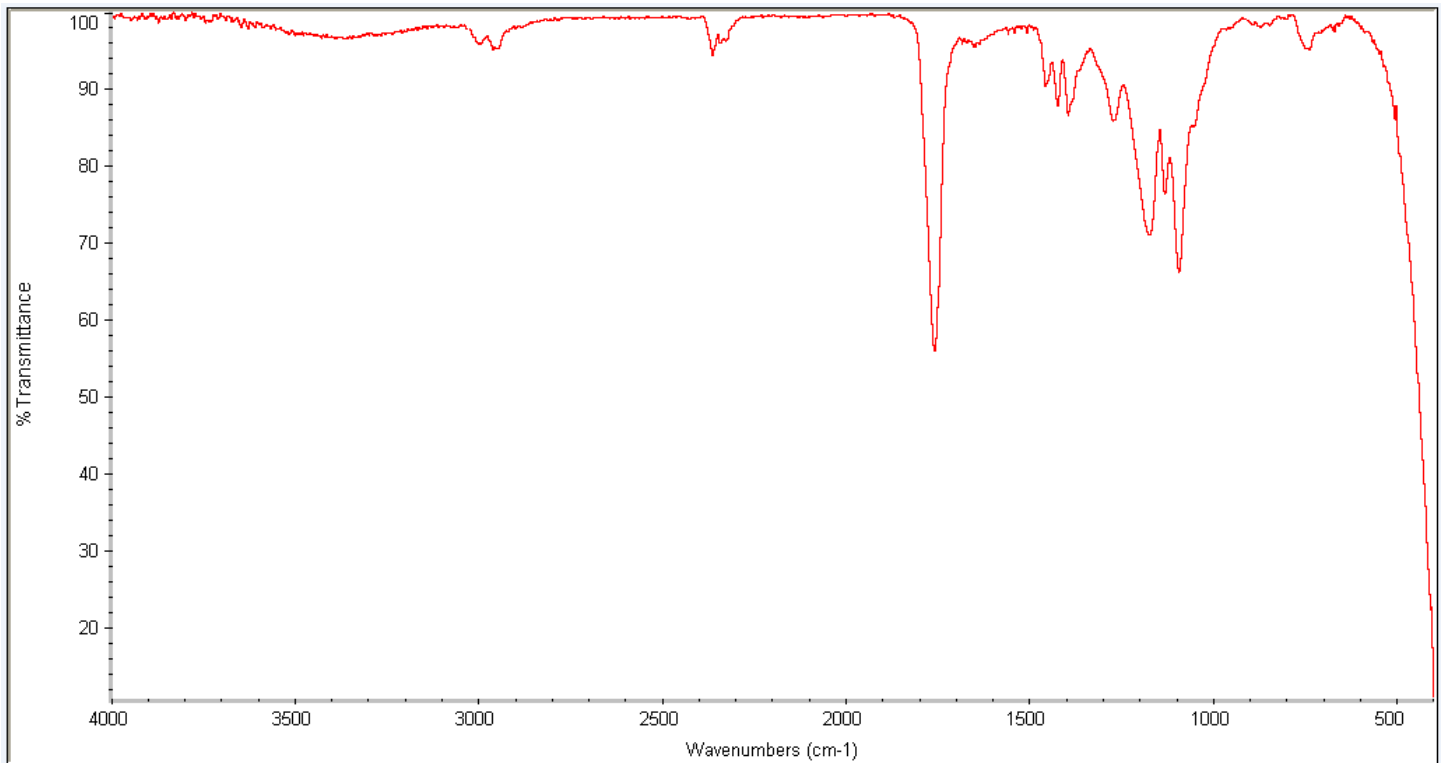
**GPC Analysis Method:** Waters Breeze 2 system with 1 ml/min THF flow across three GPC columns. Detection via refractive index, calibrated against polystyrene standards (Agilent Polystyrene, PS2).



$M_n$ (from GPC)	$M_w$ (from GPC)	PDI
24,121	34,975	1.45

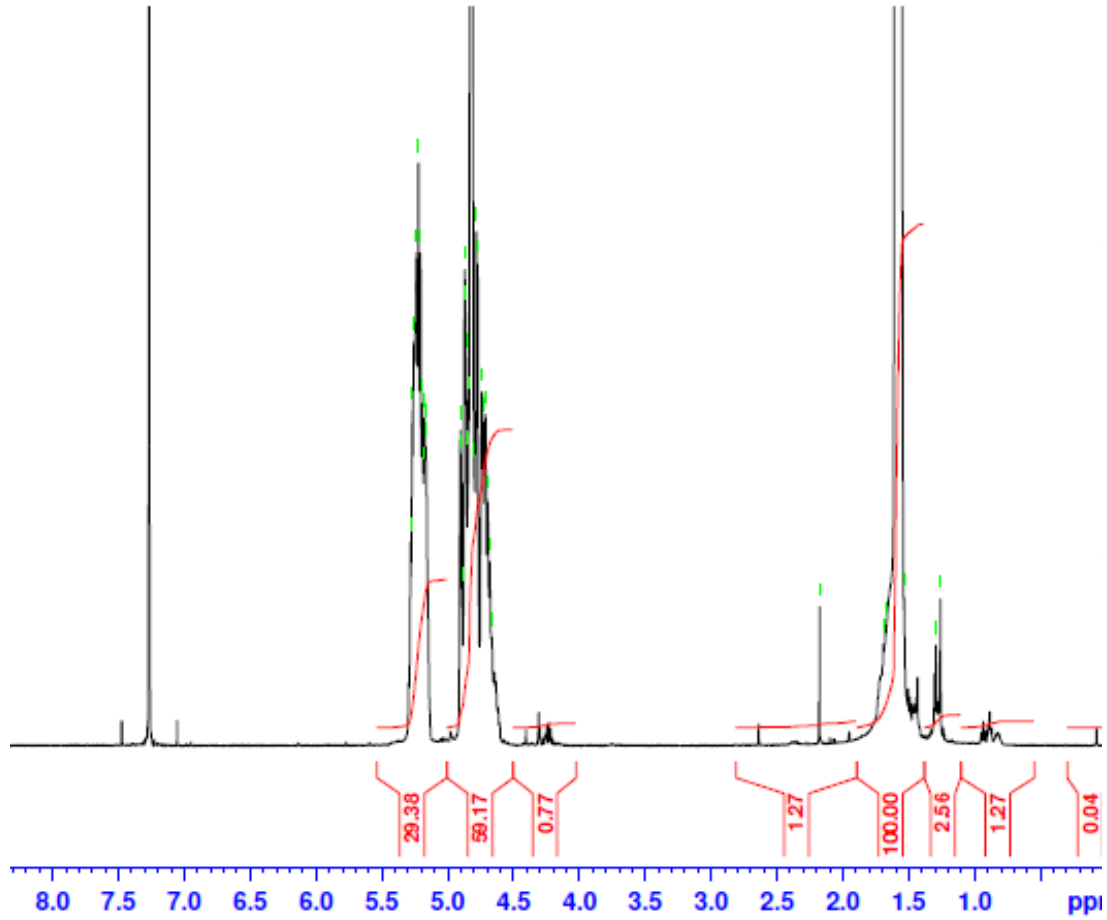
### FTIR Analysis

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



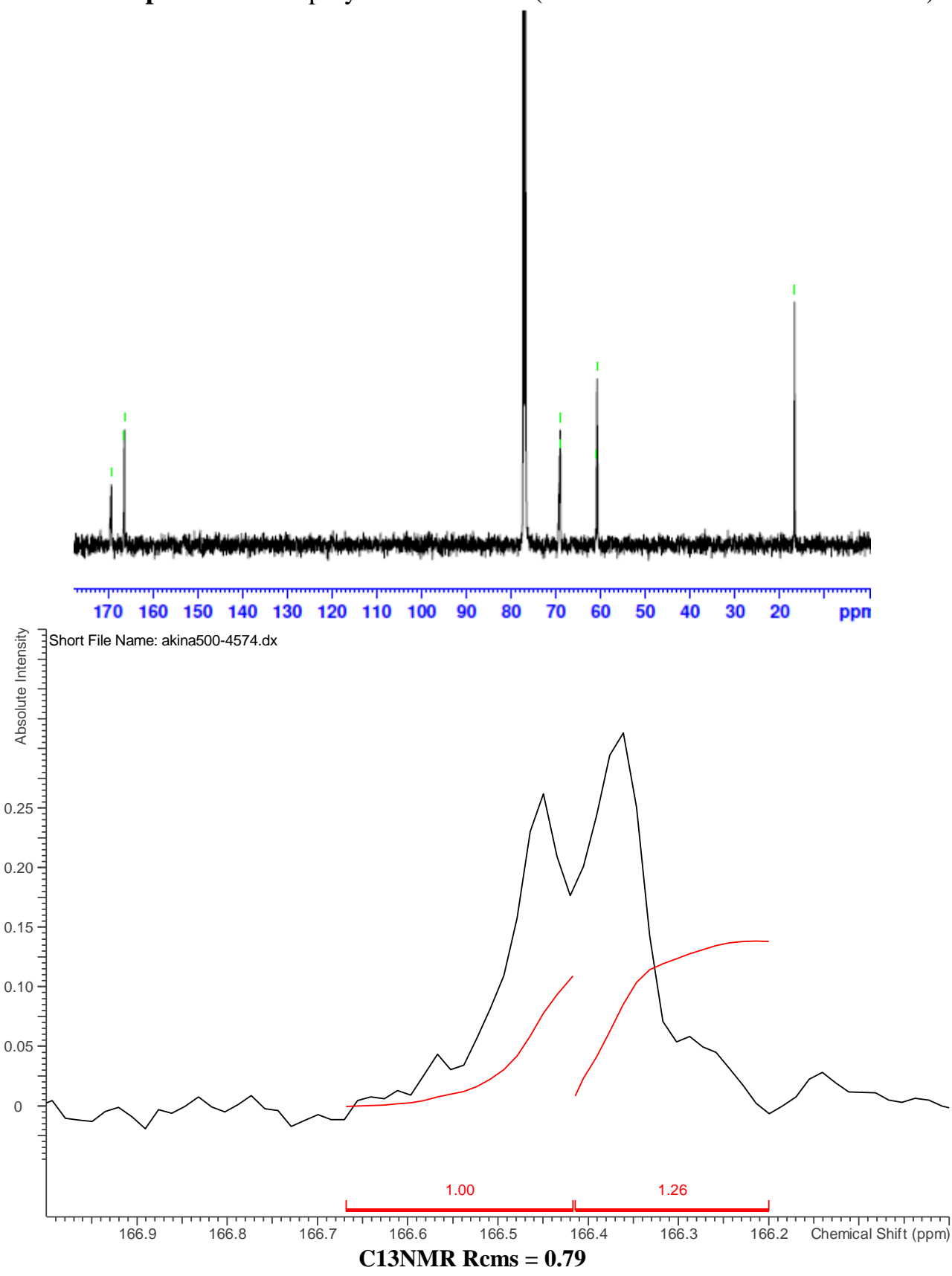
## NMR Analysis

**H-NMR Spectrum** of copolymers in CDCl<sub>3</sub> (Varian Inova 500 MHz instrument) of PLGA copolymers



LA:GA molar ratio by HNMR: 50:50 molar (LA:GA weight ratio by HNMR 55:44 w:w)

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



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