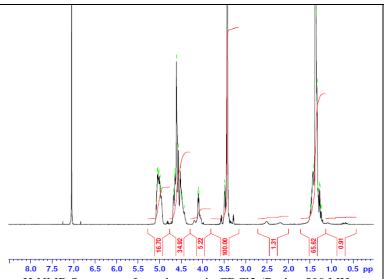
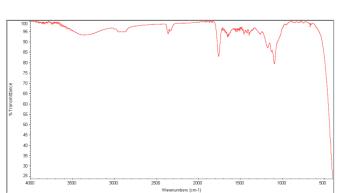
No. AK019

Certificate of Analysis

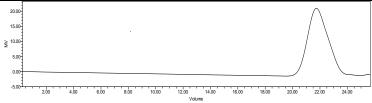
Product Name: Poly(lactide-co-glycolide)-b-Poly(ethylene glycol)-b-Poly (lactide-co-glycolide) copolymers (1,500-1,500, 50:50 LA:GA) (Lot# 190612RAI-B)



H-NMR Spectrum of copolymers in CDCl3 (Bruker 500 MHz, PINMRF) NMR of PLGA-PEG-PLGA copolymer: EG/LA-GA =34/23-24 (Mn EG/LA:GA 1498*/1635:1378 Da)



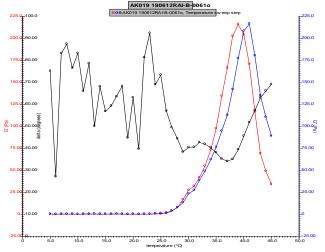
FTIR Analysis: Collected from cast-film on KBr salt-plate placed in Nicollet Avatar 320 spectrometer and analyzed in transmission mode.



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.

Polymer	M_n (from	M _w (from	PDI
	GPC)	GPC)	
PLGA-PEG-	5624	7056	1.25
PLGA	3024	7030	1.23
PEG precursor*	_	1484*	

^{*-} from MFG data



Rheology performed on AR2000 (TA instruments) with 60mm 2degree cone on 20% w/v polymer in water dissolved over 3 days with stirring at 4°C. Viscosity of solution at 0.1 (sec⁻¹) and 5°C was measured (1minute peak hold 5 second test intervals). Rheology performed by oscillating at constant 6.283 rad/s, 0.1% strain, in increments of 1°C ranging from 5-45°C with 1 minutes of temperature equilibration at each point.

Viscosity 20% w/v solution at 5°C .05553 Pa/s

Structure of PLGA-PEG-PLGA triblock copolymers

$$HO = \underbrace{\begin{pmatrix} CH_3 & O \\ -CH & -C - O \end{pmatrix}}_{LA} \underbrace{\begin{pmatrix} CH_2 - C - O \\ -CH_2 \end{pmatrix}}_{GA} \underbrace{\begin{pmatrix} CH_2 - CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 - O \\ -CH_3 \end{pmatrix}}_{CH_$$