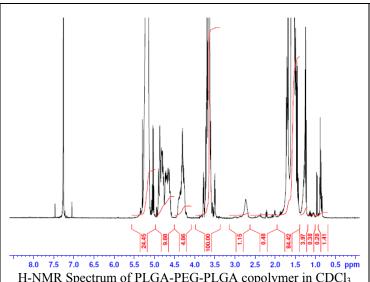
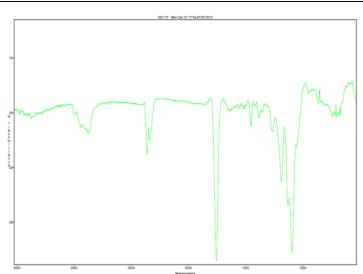
No. AK91 Certificate of Analysis



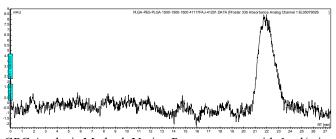
Product Name: Poly(lactic-co-glycolic acid)-*b*-Poly(ethylene glycol)-*b*-Poly(lactic-co-glycolic acid) copolymers (M_n 1,500:1,500:1,500 Da, 6:1, LA:GA) (Lot# 41117FAJ)



H-NMR Spectrum of PLGA-PEG-PLGA copolymer in CDCl₃ (Varian Inova 500 MHz instrument), M_n NMR of PLGA copolymers:EG-LA/GA: 1,498*-2,394/390 (34-33/7), LA/GA ratio: 86%/14% *Data provided by MFG (Purity by HNMR 98%)



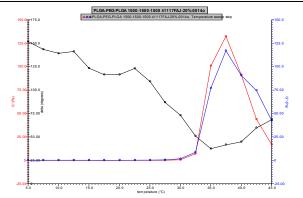
FTIR Analysis: Collected from cast-film on salt-plate placed in Satellite FTIR (Thermo-Mattson) and analyzed in transmission mode.



GPC Analysis Method: Varian Prostar system with 1 ml/min DCM flow across two Phenogel 5 µm columns and one Resipore column (Agilent). Detection via UV/Vis, calibrated against polystyrene standards.

Polymer	M _n (GPC)	Mw (GPC)	PDI
PLGA-PEG-PLGA	5,385	6,438	1.20
PEG precursor*	1,485		

^{*}Data provided by MFG.



Rheology performed on AR550 (TA instruments) with 60 mm 2 degree cone on 20% w/v polymer in water dissolved overnight with stirring at 4 °C. Viscosity of solution at 0.1 (sec $^{-1}$) and 5 °C was measured (1 minute peak hold 5 second test intervals). Rheology performed by oscillating at constant 6.283 rad/s, 0.1% strain, in increments of 2.5 °C ranging from 5-45 °C with 3 minutes of temperature equilibration at each point.

Viscosity 20% w/v solution at 5°C | 0.2499 Pa.s

• Structure of PLGA-PEG-PLGA copolymer

$$+O - \underbrace{\begin{pmatrix} CH_3 & O \\ -CH & -C -O \end{pmatrix}}_{LA} \underbrace{\begin{pmatrix} CH_2 - C -O \\ -GA \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_2 -CH_2 O \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_3} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 -CH_2 -CH_2 -O \\ -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -CH_2 -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -CH_2 -CH_2 -CH_2 -CH_2 -CH_2 O \end{pmatrix}}_{CH_2 CH_2 O} \underbrace{\begin{pmatrix} CH_2 - CH_2 -CH_2 -CH_2$$

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