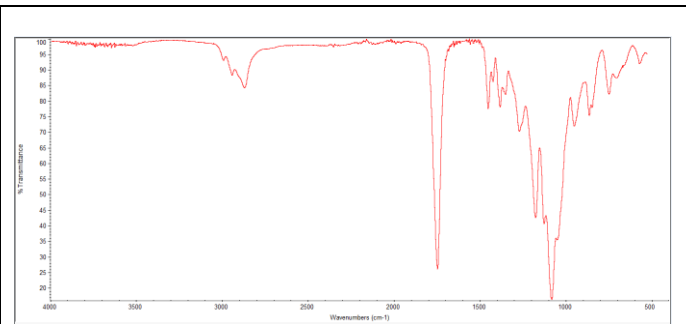
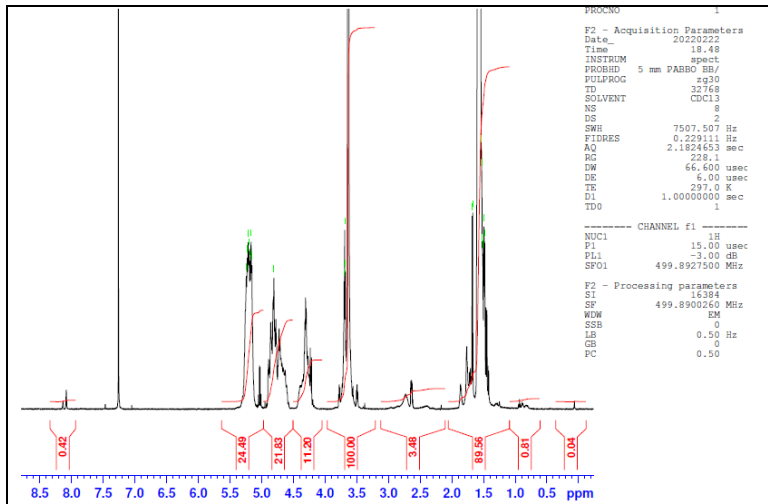


No. AK024

Certificate of Analysis

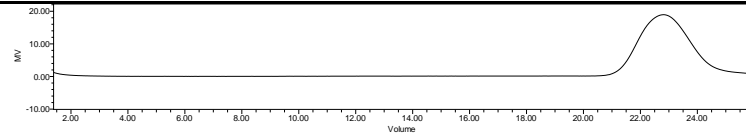


Product Name: Poly(lactic-co-glycolic acid)-*b*-Poly(ethylene glycol)-*b*-Poly(lactic-co-glycolic acid) copolymers ($M_n \sim 1,100$ - $1,000$ - $1,100$ Da, 3:1 LA:GA)
(Lot# 220211RAI-A)



FTIR Analysis: Collected from Nicolet Avatar 380 spectrometer with ATR Smart Orbit and analyzed in transmission mode.

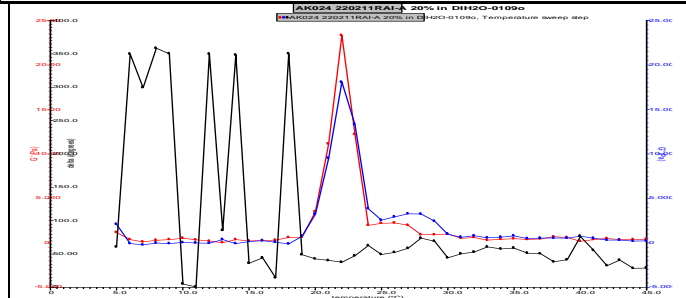
H-NMR Spectrum of copolymers in CDCl₃ (Bruker ≥ 300 MHz, PINMRF) NMR of PLGA-PEG copolymer: EG/LA-GA = 23*/23-10 (M_n EG/LA:GA 1013*/1622-583 Da) *- from MFG data



GPC-ES 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 GPC)	M_w (from GPC)	PDI
PLGA-PEG-PLGA	3134	3920	1.25
PEG precursor*	1000*		

*- 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 **.02598 Pa/s**

Structure of PLGA-PEG-PLGA

