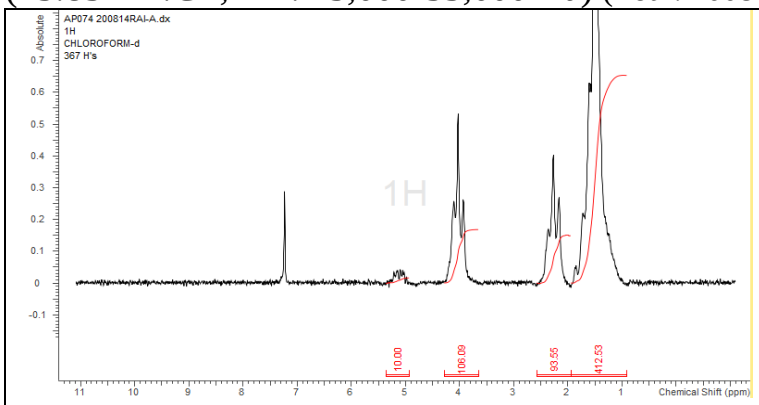
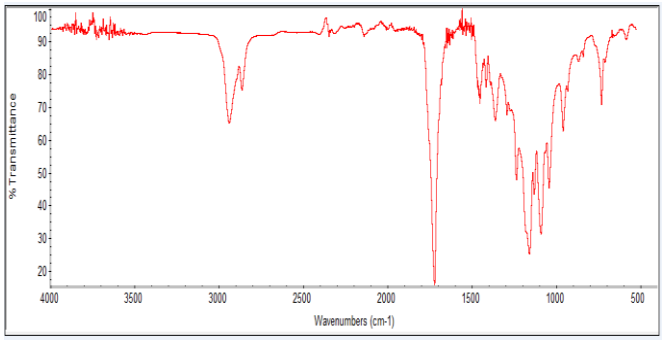
No. AP269 Certificate of Analysis

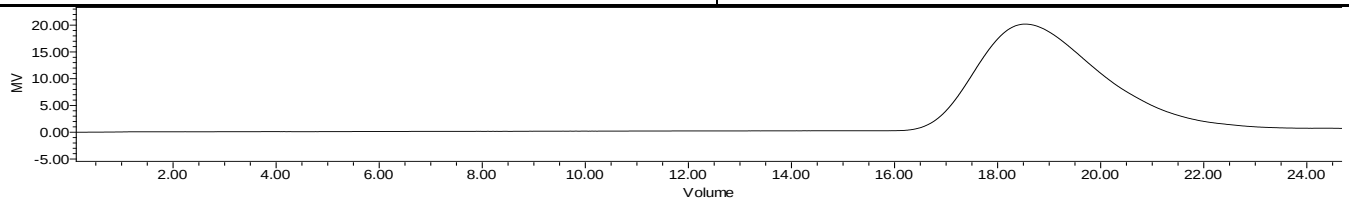
Product Name: Poly(L-Lactic-co-caprolactone) copolymer ester endcap (15:85 LA:CL, Mn: 45,000-55,000 Da) (Lot#: 200814RAI-A)



H-NMR Spectrum of copolymers in CDCl3 (NMReady-60e, Nanalysis 60 MHz) NMR of PLCL copolymer: LA-CL = 16%-84% molar ratio (LA-CL 11%-89% w-w)

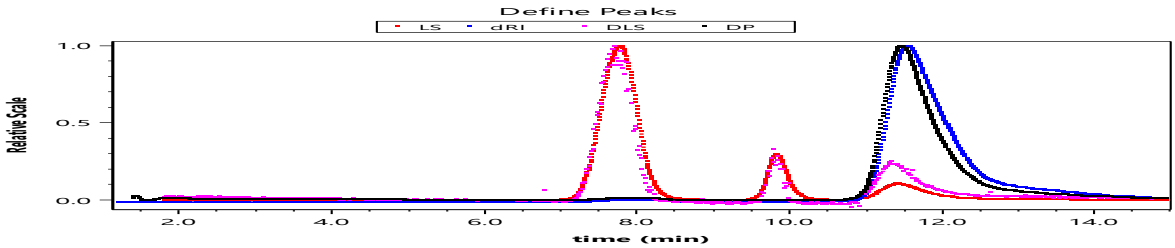


FTIR Analysis: Collected from Nicollet Avatar 380 spectrometer with ATR Smart Orbit and analyzed in transmission mode.



GPC-ESAnalysis 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
PLCL	47,101	70,527	1.50

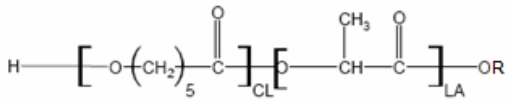


GPC-4D Analysis Method: Agilent 1260 Infinity II system 0.6 ml/min Acetone flow across TSKgel GMHHR-L, 7.8 mm x 30 cm. Detection Dawn Heleos II (MALLS), Optilab T-rex (RI), Dynapro nanostar (DLS), and Viscostar III (viscosity), universal calibration (Wyatt).

Polymer	M_n (from GPC-4D)	M_p (from GPC-4D)	M_w (from GPC-4D)	Radius (r(avg), nm)	Intrinsic viscosity ([n](avg), mL/g)
PLCL	51,654	61,307	60,938	26	45.088

* - Due to differences in methodolgy, Results from GPC-4D universal calibration will be different from those obtained from GPC-ES. The data from GPC-4D analysis is provided for customer information only.

- **Structure of PLCL copolymers**



R = decanol initiator

PolySciTech Division of Akina, Inc. | 3495 Kent Avenue, West Lafayette, IN 47906
765-464-0390 | www.polyscitech.com
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