

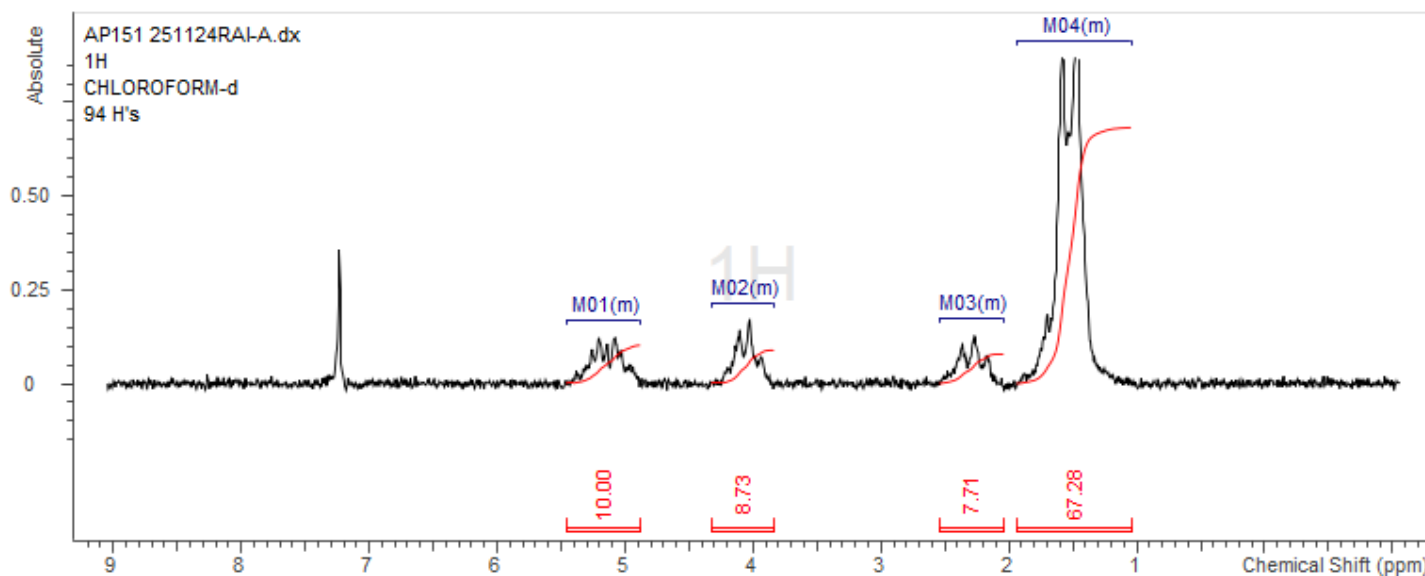
**No. AP325**

# Certificate of Analysis



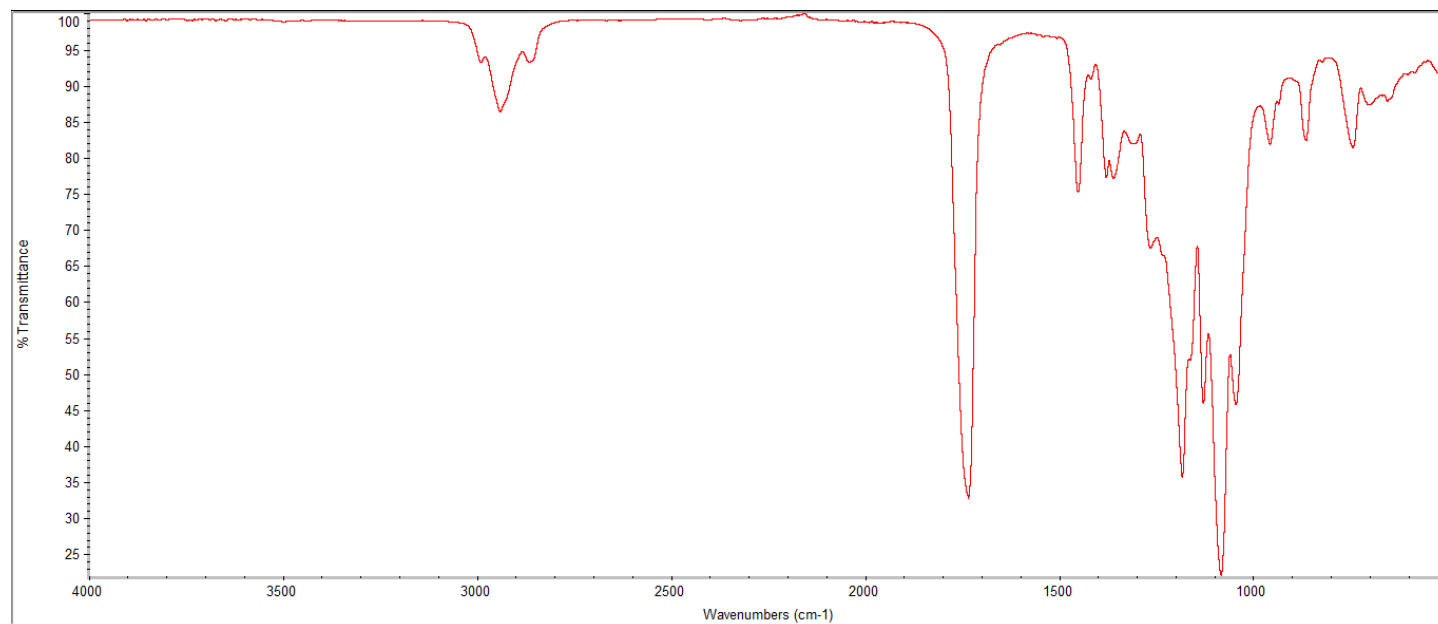
Product Name: Poly((D,L)Lactic-co-caprolactone) Copolymers acid end-capped  
(70:30 LA:CL,  $M_n$ : 85,000-100,000 Da) (Lot#: 251124RAI-A)

## H-NMR



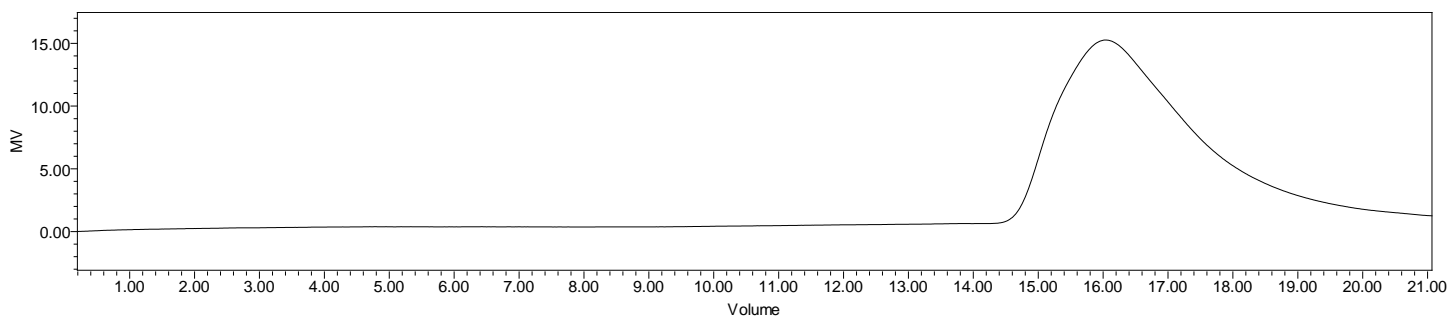
**H-NMR** Spectrum of copolymers in  $CDCl_3$  (NMReady-60e, Nanalysis 60 MHz) NMR of PDLCL copolymer: LA-CL =70%-30% molar ratio (LA:CL 74%:26% w:w)

## FTIR



**FTIR** Analysis: Collected from IS5 ID7-ATR spectrometer (Thermo Scientific) and analyzed in transmission mode.

## GPC-ES



Polymer	M <sub>n</sub> (from GPC)	M <sub>w</sub> (from GPC)	PDI
PDLCL	93,882	138,527	1.48

**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.

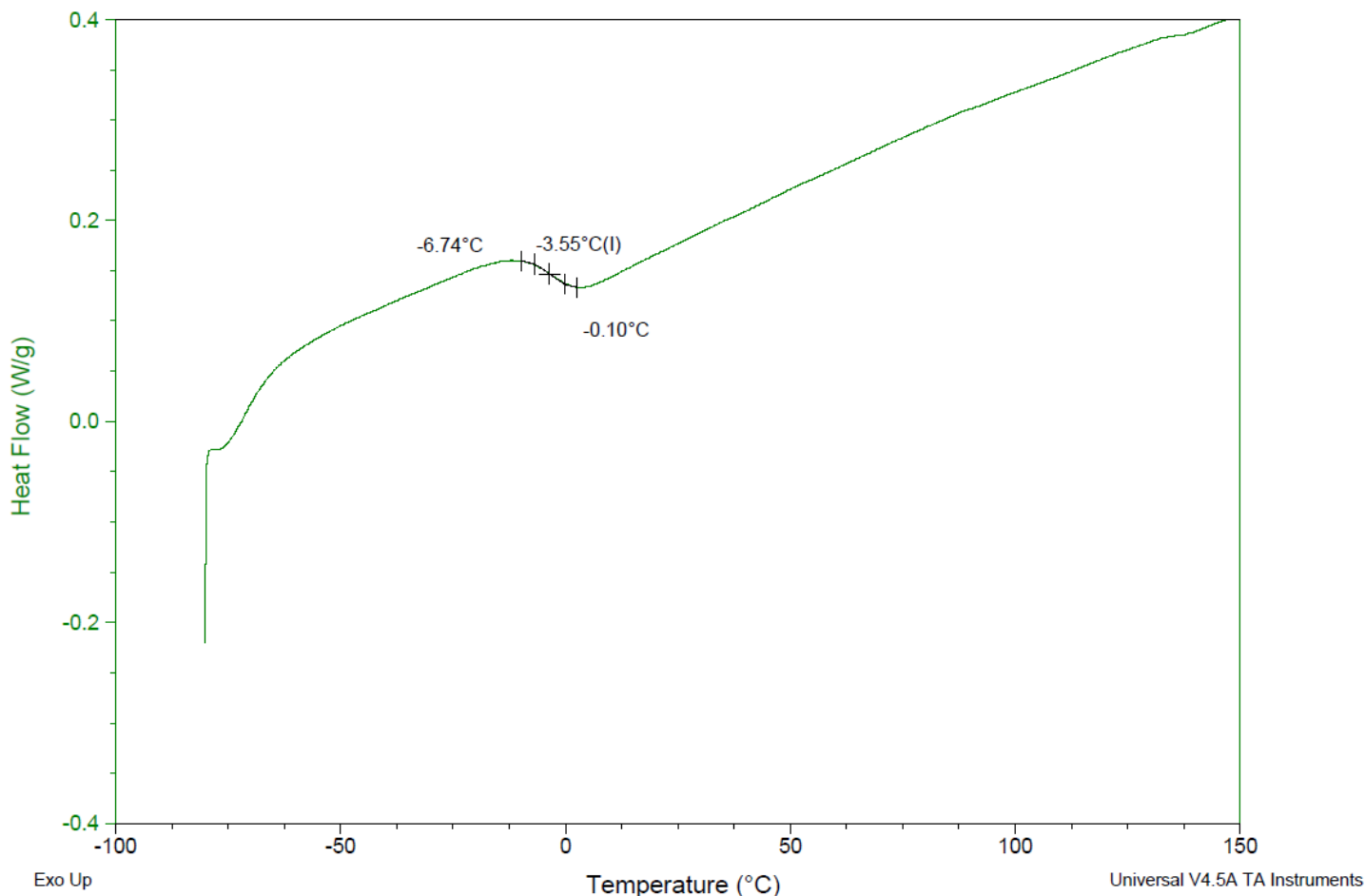
## DSC

Sample: AP151 251124RAI-A  
Size: 4.5000 mg  
Method: Ramp

DSC

File: C:\...\COA\AP151 251124RAI-A.002

Run Date: 15-Dec-2025 12:26  
Instrument: DSC Q2000 V24.11 Build 124

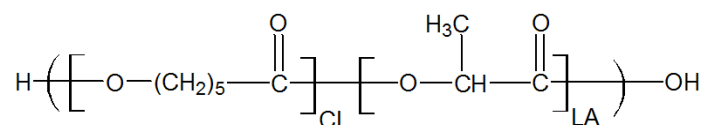


**DSC Testing:** 1-5 mg sample tested in crimped aluminum pan on a TA Instruments Model Q2000 with procedure equilibraion 100 °C, isothermal 5 minutes, equilibrate -80 °C, data on, ramp 10 °C/min to 150 °C. Tg = -3.55 °C

## IV

**Inherent Viscosity:**  $0.451 \pm 0.006$  dL/g (calculated from kinematic viscosity at 2% w/v Acetone on Rheosense microVISC, n=3) at 25°C.

### Structure of copolymers



Approved By:  
*Amie Tyler*  
Quality Manager