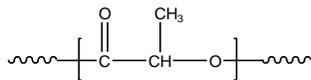


Sample Name: Polylactide

Sample #: P8940-LA (L-Form)

Structure:

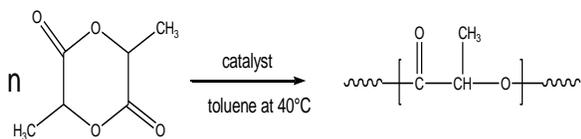


Composition:

| | |
|-------------------|------|
| $M_n \times 10^3$ | PDI |
| 13.5 | 1.25 |

Synthesis Procedure:

The polymerization of (3S)-cis 3, 6-dimethyl-1,4-dioxane-2,5-dione was initiated with an aluminum-based catalyst and the reaction was carried out in a polar solvent.



Purification:

Catalyst residues were removed by repeated extraction with an aqueous EDTA solution (0.1 mol L⁻¹) and the polymeric solution was then washed with water up to neutral pH. Toluene was removed under reduced pressure and the polymer was precipitated employing a large excess of hexane. The polymer was further dissolved in benzene and filtered followed by freeze drying.

Characterization:

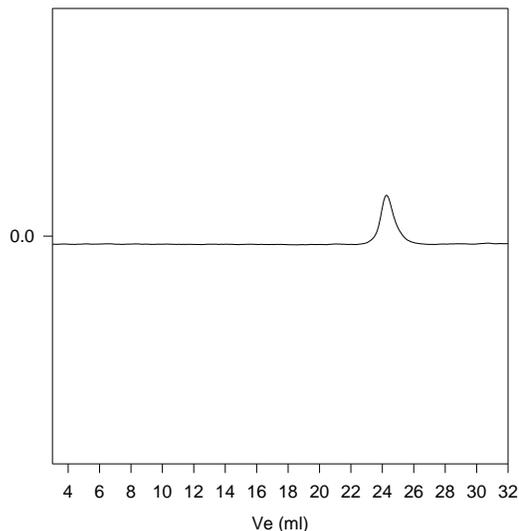
The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography.

Solubility:

Polylactide is soluble in toluene, THF, CHCl₃ and CH₂Cl₂. The polymer is insoluble in methanol, hexane and ether.

SEC of Homopolymer:

P8940-LA (L form)



Size exclusion chromatography result:

— $M_n=13500$ $M_w=16700$ $PI=1.25$ (M_n calculated from ¹H NMR)

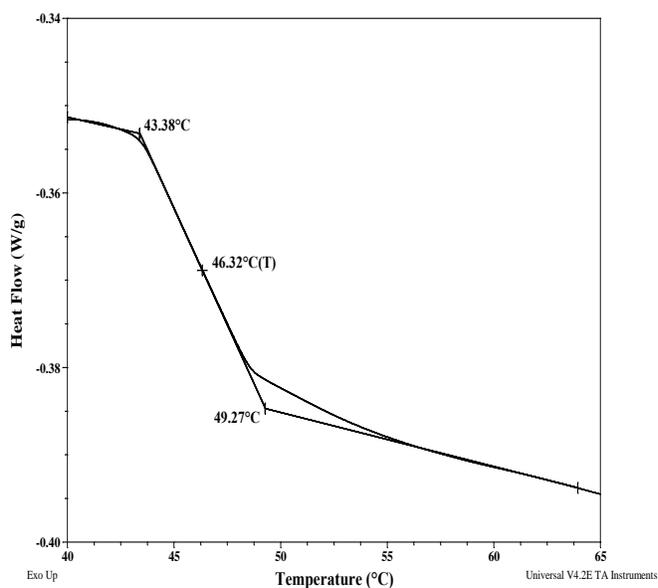
Thermal analysis of the sample P8940-LA

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Thermal analysis results at a glance

| T_m (°C) | T_c (°C) | T_g (°C) |
|------------|------------|------------|
| 151 | 104 | 46 |

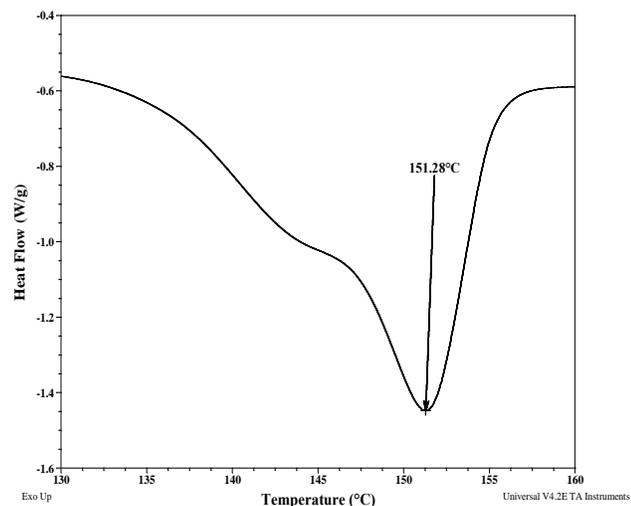
Thermogram for the sample



Melting and crystallization curves

The melting temperature (T_m) was taken as the maximum of the endothermic peak where as the crystallization temperature (T_c) was considered as the minimum of the exothermic peak.

Melting curve for the LA sample:



Crystallization curve:

