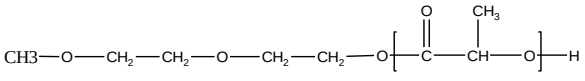
**Sample Name: Polylactide monomethoxy terminated (L form)**

**Sample #: P5757-LA (L-Form)**

**Structure:**

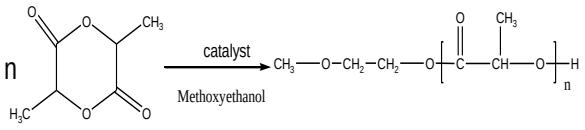



**Composition:**

| Mn × $10^3$ | PDI |
|---|---|
| 29.0 | 1.17 |
| $T_g$ | 54 °C |
| $T_m$ | 174 °C |
| $T_c$ | 106 °C |

**Synthesis Procedure:**

The polymerization of 3, 6-dimethyl-1,4-dioxane-2,5-dione was initiated with an catalyst and the reaction was carried out in THF.




**Characterization:**

The molecular weight is calculated from NMR by comparing methane proton of lactide at 5.1ppm and methoxyethanol protons at 3.4 and polydispersity index (PDI) is obtained by size exclusion chromatography.

**Thermal analysis:**

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 ($T_g$).

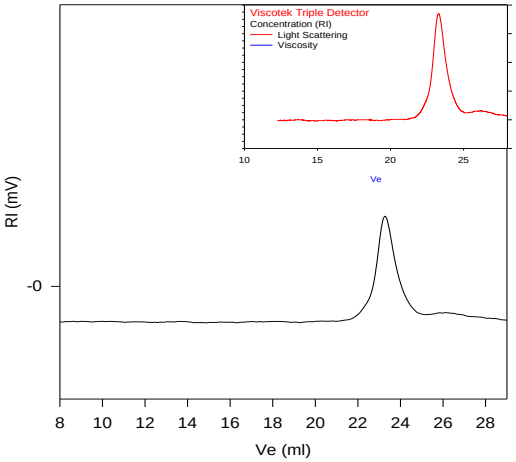
The melting temperature ($T_m$) was taken as the maximum of the endothermic peak where as the crystallization temperature ($T_c$) was considered as the minimum of the exothermic peak.

**Solubility:**

Polylactide is soluble in toluene, THF, $CHCl_3$ and $CH_2Cl_2$. The polymer is insoluble in methanol, hexane and ether.

**SEC of Homopolymer:**

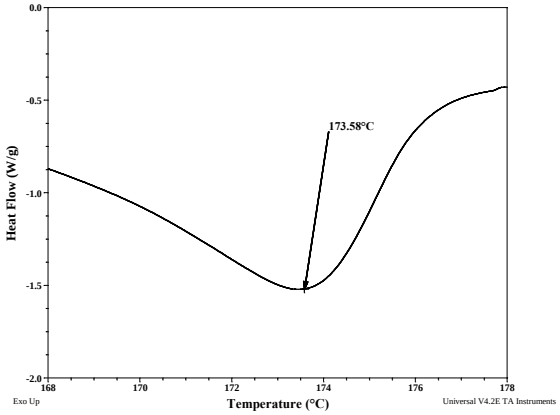
**P5757-LA (L form)**



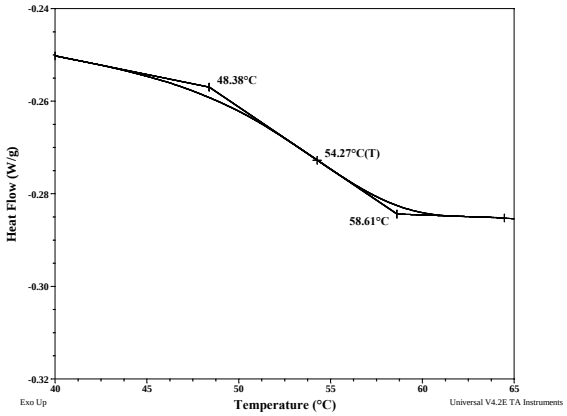

Size Exclusion Chromatography of Poly lactide (L form)

—— $M_n$ = 29,000, $M_w$ = 34,000, $M_w/M_n$ = 1.17
Solution Viscosity in THF at 35 oC: 0.617dl/g
dn/dcin THF at 35 oC: 0.046 ml/g
Rgw: 8.38nm

**Melting curve for the polymer:**




**DSC thermogram for the polymer:**




**Reference: for further reading:**


1. Ahmed, J., Zhang, J-X., Song, Z., Varshney, S.K. J. Thermal Analysis and Calorimetry, 95, 3, 957-964, 2009.
2. Ahmed, J., Varshney, S.K. & Zhang, J-X., J. Food Engg., 93, 308-312, 2009.