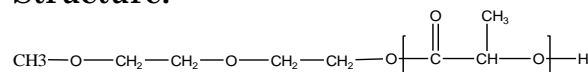


**Sample Name:** Polylactide  
monomethoxy terminated (D form)

**Sample #:** P5764-LA (D-Form)

**Structure:**

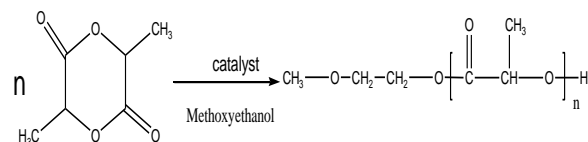


**Composition:**

$M_n \times 10^3$	PDI
6.0	1.15

**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:**

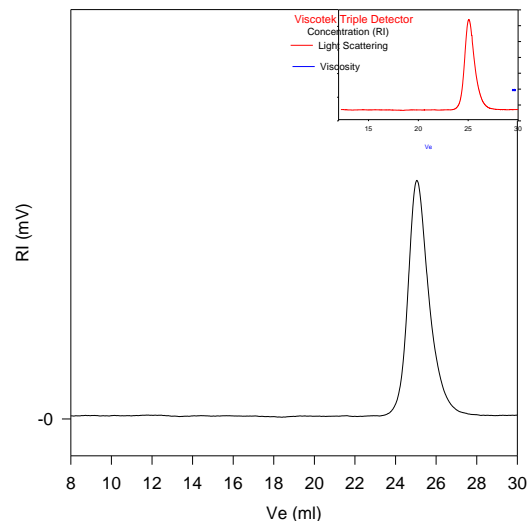
The molecular weight is calculated from NMR by comparing methane proton of lactide at 5.1ppm and methoxyethanol protons at 3.4 and polydispersity index (PDI) is obtained by size exclusion chromatography.

**Solubility:**

Polylactide is soluble in toluene, THF,  $\text{CHCl}_3$  and  $\text{CH}_2\text{Cl}_2$ . The polymer is insoluble in methanol, hexane and ether.

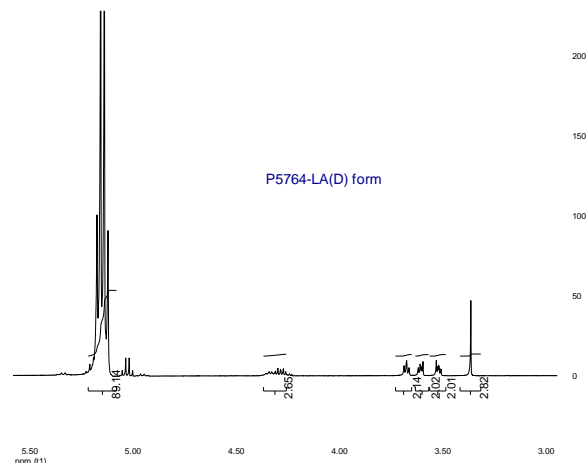
**SEC of Homopolymer:**

**P5764-LA(D form)**



Size Exclusion Chromatography of Polymer;

—  $M_n = 6000$ ,  $M_w = 6900$ ,  $M_w/M_n = 1.15$  ( $M_n$  by HNMR)  
Solution Viscosity in THF at 35 °C: 0.21 dL/g  
 $dn/dc$  in THF at 35 °C: 0.046 mL/g  
Rgw: 3.17 nm



**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.

## Thermal analysis of the sample# P5764-LA (D-form)

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 ( $T_g$ ).

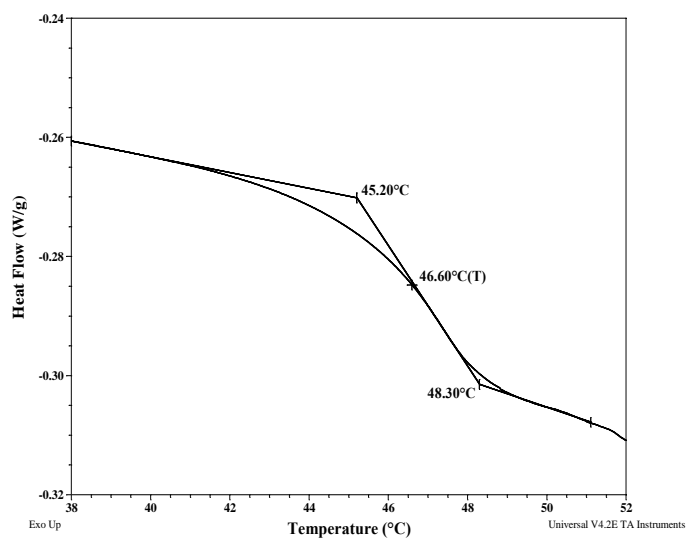
## Melting and crystallization curve for the sample

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.

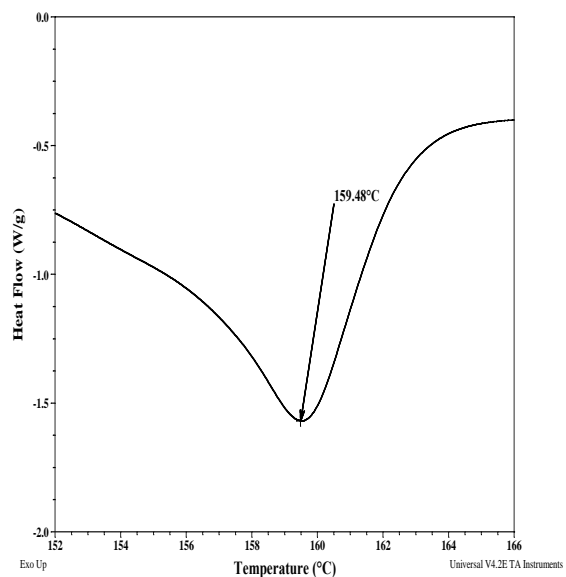
## Thermal analysis results at a glance:

Thermal parameter	Value
Glass transition temp. ( $T_g$ )	47 °C
Melting temp. ( $T_m$ )	159 °C
Crystallization temp. ( $T_c$ )	102 °C

## Thermogram for PLA block:



## Melting curve for PLA block



## Crystallization curve For PLA block

