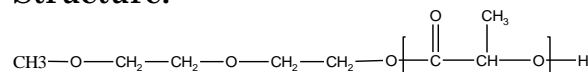


**Sample Name:** Polylactide  
monomethoxy terminated (D form)

**Sample #:** P5766-LA (D-Form)

**Structure:**

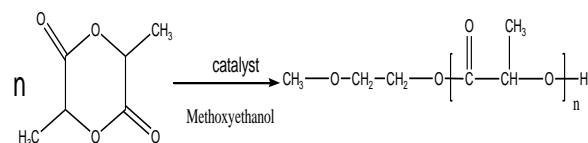


**Composition:**

| $M_n \times 10^3$ | PDI |
|-------------------|-----|
| 30.0              | 1.4 |

**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.



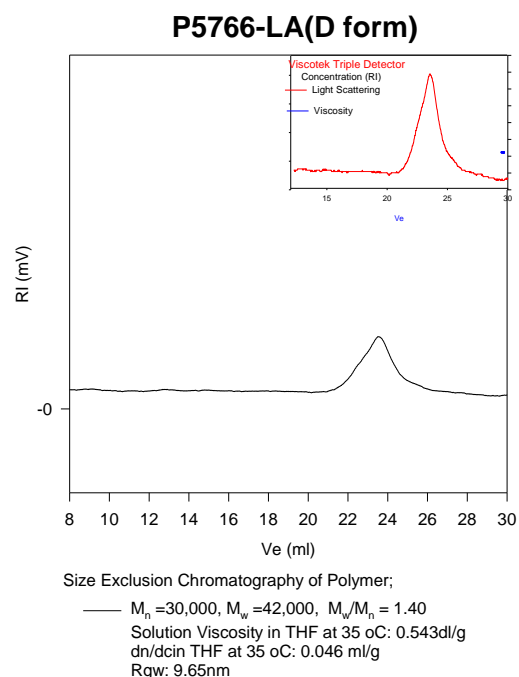
**Characterization:**

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:**



**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# P5766-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 ( $T_g$ ).

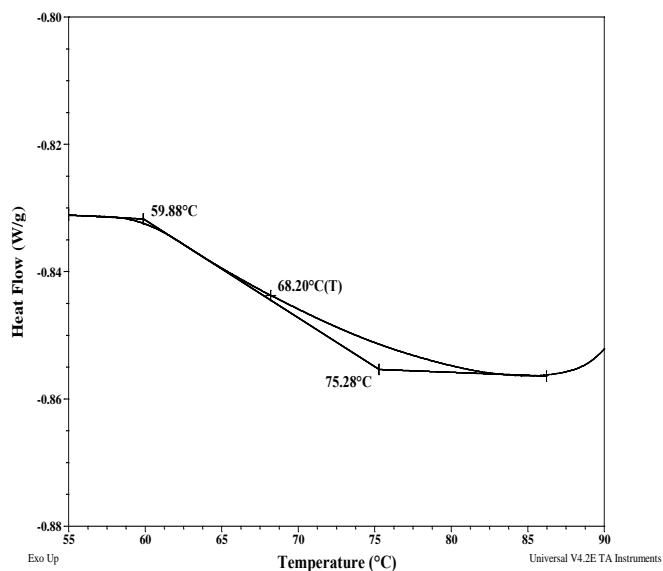
## Melting and crystallization curve for the sample

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.

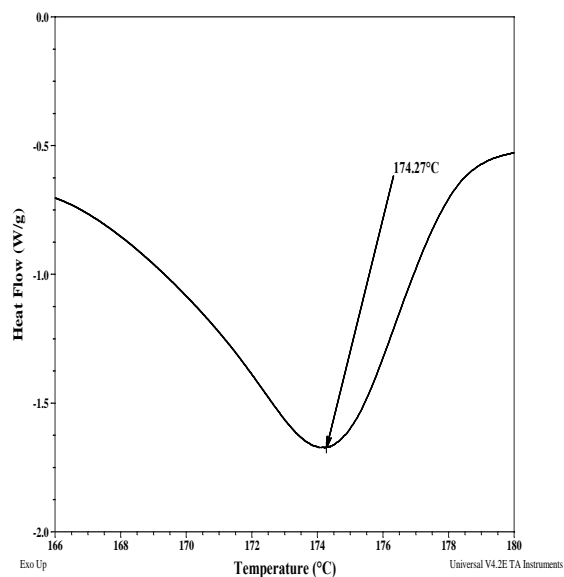
## Thermal analysis results at a glance:

| Thermal parameter                | Value  |
|----------------------------------|--------|
| Glass transition temp. ( $T_g$ ) | 68 °C  |
| Melting temp. ( $T_m$ )          | 174 °C |
| Crystallization temp. ( $T_c$ )  | 107 °C |

## Thermogram for PLA block:



## Melting curve for PLA block



## Crystallization curve For PLA block

