

## Product Profile

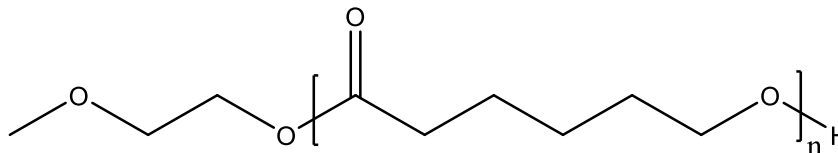
### Identification

**Product Name:** Poly(ε-Caprolactone)

**Product Lot Number:** P18176C-CL

**CAS #:** 24980-41-4

**Chemical Architecture:**



**Composition:**

<b>Mn (g/mole)</b>	<b>21,000</b>
<b>Mw (g/mole)</b>	<b>31,500</b>
<b>Mw/Mn</b>	<b>1.50</b>
<b>dn/dc (mL/g) in THF at 30 °C</b>	<b>0.030</b>

### Method of Synthesis

The polymer is synthesized by ring opening polymerization process.

**Solubility in different solvents:**

THF	√	DMF	√
Alcohol	X	CHCl <sub>3</sub>	√
Toluene	√	Water	X

### Validation of Architecture

#### A. Gel Permeation Chromatography (GPC), SEC Profile:

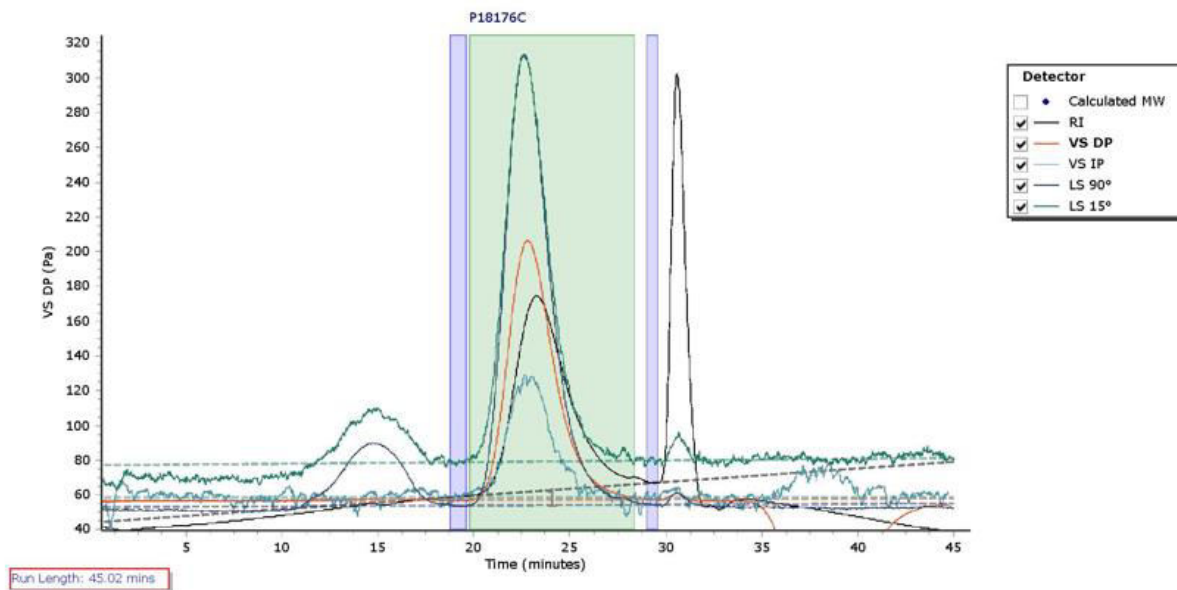
Molecular weights were determined by Agilent Technologie 1260 Infinity II GPC/SEC System equipped with Triple detector (RI, Viscometer, RALS 90° and LS 15°) and three columns (PLgel, 7.5x300 mm, 5μm-10μm, 10<sup>5</sup>-10<sup>6</sup>Å).

THF (stabilized BHT) with 1%(v/v%) TEA was the eluent. The flow rate was 1.0 ml/min.



## P18176C

### Chromatogram Plot

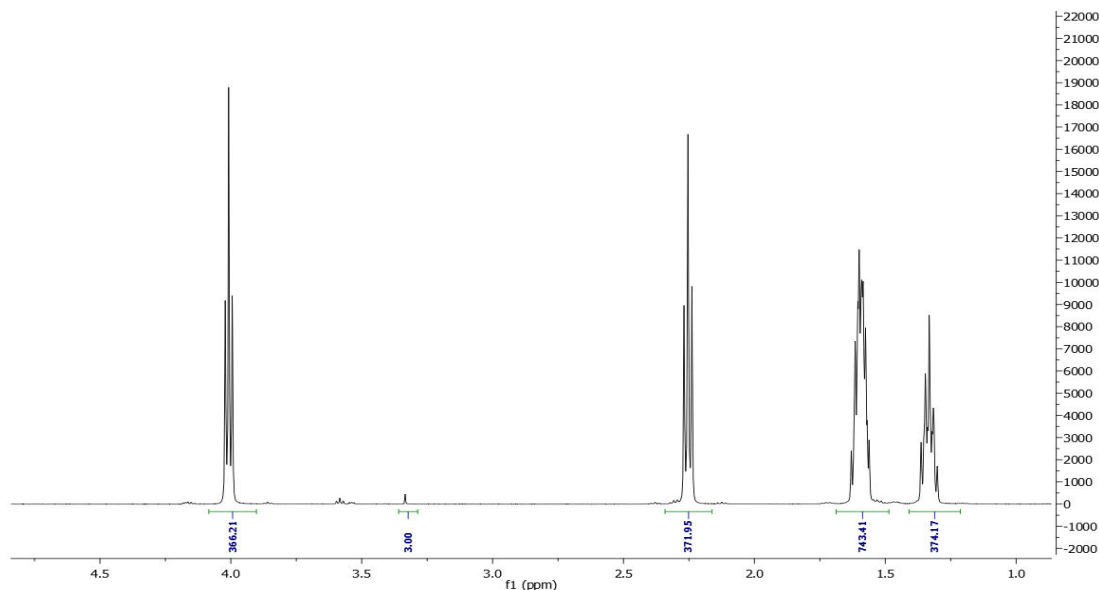


### Molecular Weight Averages

Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Mv (g/mol)	PD
Peak 1	37654	22604	36169	49891	63220	47700	1.6

### B. NMR (<sup>1</sup>H NMR) of CL

CL sample was dissolved in CDCl<sub>3</sub>. <sup>1</sup>H NMR spectra was determined using a 500 MHz. Bruker Avance III spectrometer.



### Thermal analysis of the sample

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 ( $T_g$ ).

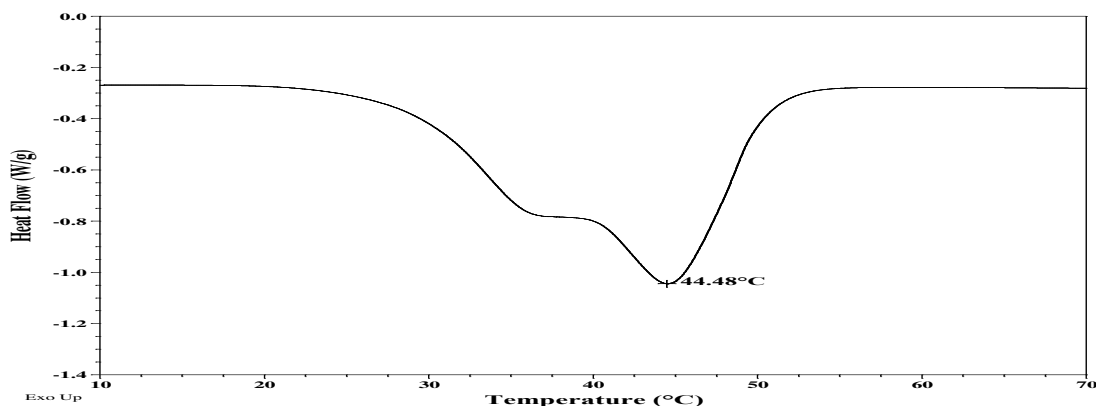
### Melting and crystallization curve for the sample

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

$T_m$ (°C)	$T_c$ (°C)	$T_g$ (°C)
44	17	Not distinct

### Melting curve for the CL sample:



### Crystallization curve for the CL sample:

