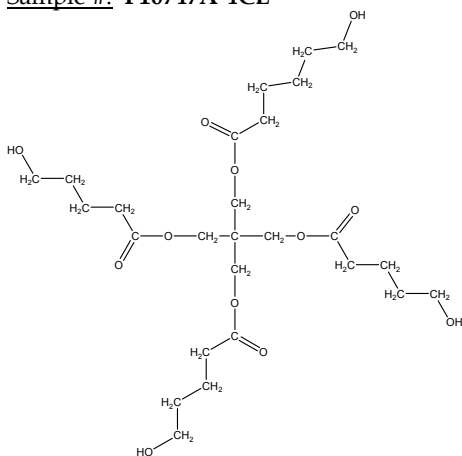


Sample Name:

Four arm Poly(ϵ -caprolactone) bearing core of pentaerythritol

Sample #: P10747A-4CL



Mn x 10 ³ (branch)	PDI
0.219 (Mn total 0.876)	1.38
Solubility in DMF, DMSO and in Acetone	

Core: 136

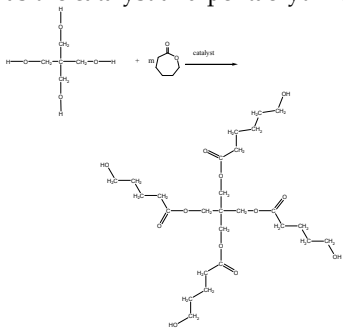
4CL: 740

Total with Core: 876

Mn of Branch: 219

Synthesis Procedure:

The polymer was prepared by ring opening polymerization of caprolactone using Tin octoate as the catalyst and pentaerythritol Mn of 136.



Characterization:

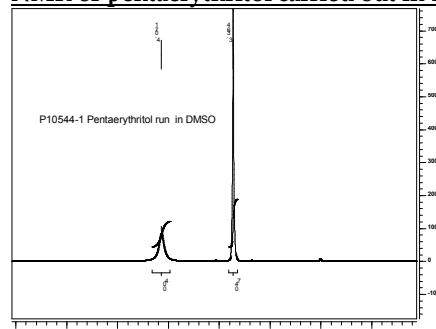
The Mn of the polymer is calculated from ¹H-NMR spectroscopy by comparing the peak area of the core protons at about 3.6 ppm with the ϵ -caprolactone protons at about 4.1 ppm. Polydispersity is determined by size exclusion chromatography (SEC): Varian liquid chromatograph equipped with UV and refractive detector. SEC columns from Supelco were used with THF containing 2 vol% (Et)₃N as the eluent.

Purification of the obtained polymer:

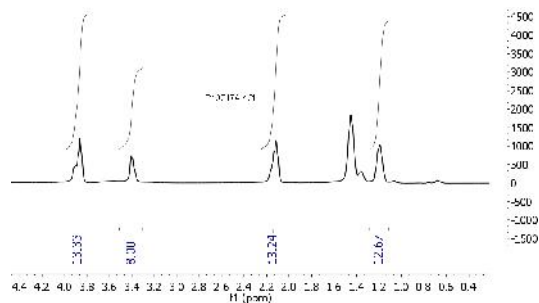
Purification of the obtained polymer was carried out rigorously as discussed below to ensure the removal of the catalyst and traces amount of unreacted 4-hydroxy core based on pentaerythritol.

1. Dissolved the polymer dichloromethane, solution filtered and then passed through a column packed with basic Al₂O₃.
2. Solution concentrated on rota-evaporator
3. Solution precipitated in cold diethyl ether.
4. Dried under vacuum for 48h at 150 °C to remove any low molecular weights oligomeric species

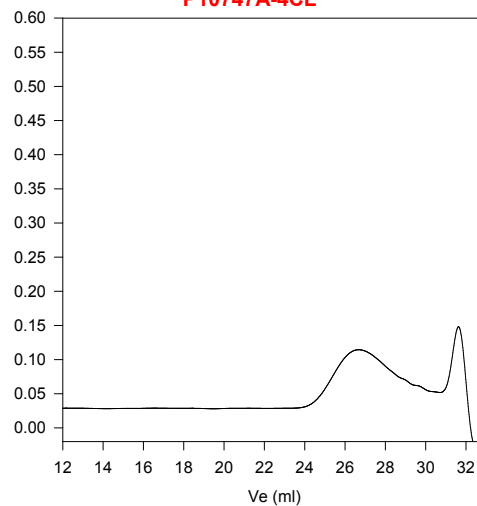
NMR of pentaerythritol carried out in DMSO:



¹H NMR of the Product:



P10747A-4CL



Size Exclusion Chromatogram of Four-Arm Poly(ϵ -caprolactone)
(core based on pentaerythritol moiety)

— Mn=876 Mw/Mn=1.38
Core Pentaerythritol : Mn 136