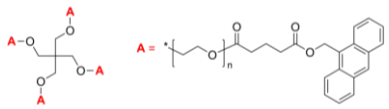
Sample Name:

Poly(ethylene oxide), (anthracen-9-yl)-terminated 4-arm star polymer / Core: pentaerythritol

Ester linkage

Sample #: P44287-4EOAn

Structure:



Composition:

Mn x 10^3 (total)	Mn x 10^3 (Each Branch)	PDI
13.0	3.3	1.4
Allyl Functionality>99%		

Synthesis Procedure:

The polymer was prepared by anionic living polymerization of ethylene oxide using pentaerythritol potassium salt as the initiator. OH end groups were modified to its ester by reaction with 9 -anthracenyl acid chloride

Characterization:

The product was characterized by size exclusion chromatography (SEC) and ^{1}H NMR data analysis.

Purification of the obtained polymer:

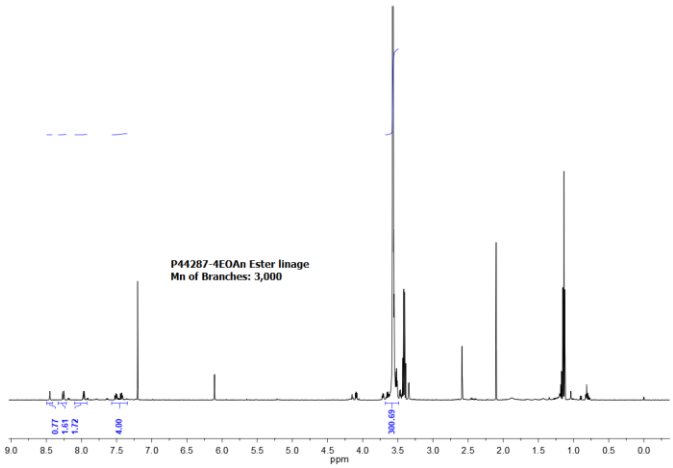
Purification of the obtained polymer was carried out rigorously as follows to ensure the removal of the catalyst side product:

1. Dissolved the polymer in de-ionized distilled water to remove the any insoluble organic catalyst side product.
2. Polymer extracted from water with dichloromethane.
3. The polymer solution in dichloromethane was dried over anhydrous sodium sulfate.
4. Solution filtered and then passed through a column packed with basic Al_2O_3.
5. Solution concentrated on rota-evaporator.
6. Solution precipitated in cold diethyl ether.
7. Dried under vacuum for 48h at 38 ^oC.

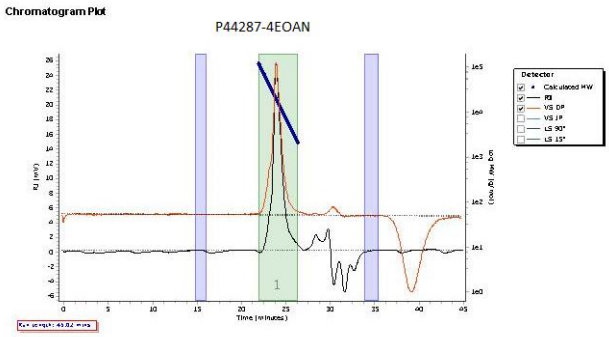
Solubility:

Polymer is soluble in THF, water and $CHCl_3$. The polymer is insoluble in hexane, ether, cold isopropanol, and cold ethanol.

^{1}H NMR spectrum of polymer in $CdCl_3$:



SEC profile of the polymer:



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	19864	13169	18864	24702	31282	23076	1.433