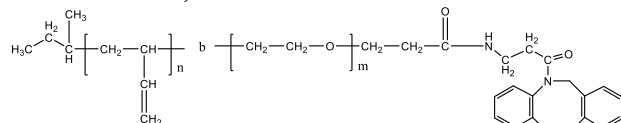


Sample Name: Dibenzocyclooctyne (DBCO) end functionalized Poly(butadiene-b-ethylene oxide)

Sample #: P41252B-BdEO-DBCO
(poly butadiene block rich in 1,2 microstructure)

Structure of 1,2-rich microstructure:

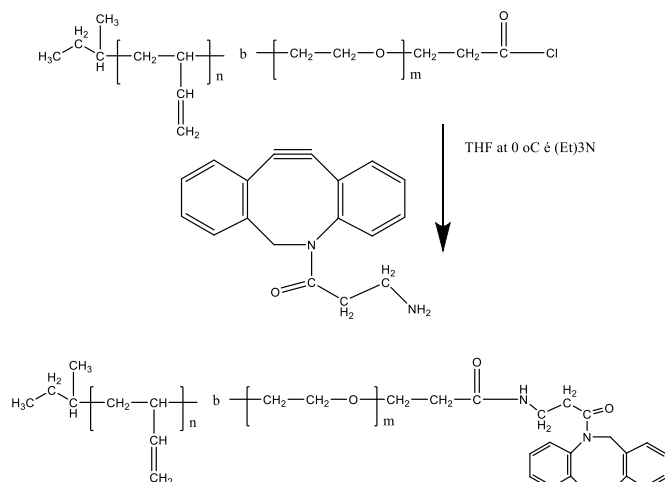


Composition:

Mn x 10 ³ Bd-b-EO-Biotin	Mw/Mn (PDI)	DBCO Functionality
1.9-b-0.9	1.09	>99% ±10%

Synthesis Procedure:

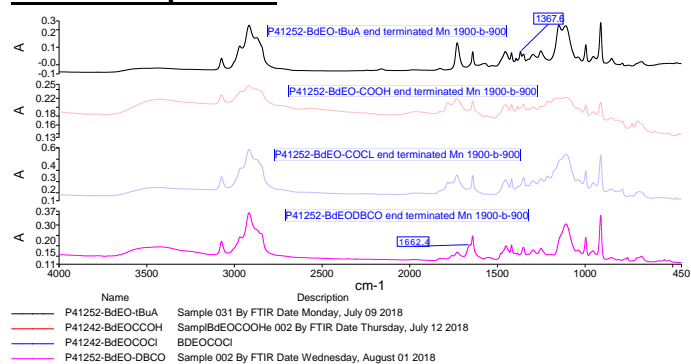
Poly(butadiene(1,4 addition or 1,2 addition)-b-ethylene oxide) can be prepared by the different routes as reported in the literature. The polymerization was Based on BDEO-COCl starting material. COOH end functional modified to BDEO-COOC1 (acid chloride) it was then reacted with DBCO_NH2 in THF in presence of (Et)₃N. Reaction followed by FTIR.



Characterization:

The product was characterized by size exclusion chromatography (SEC), ¹H NMR spectroscopy and FTIR.

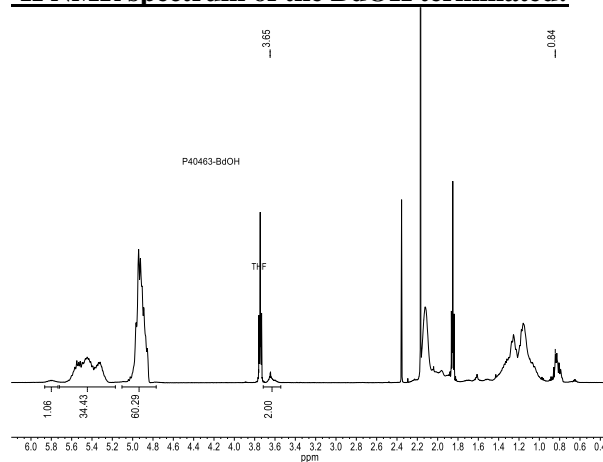
FTIR of the product:



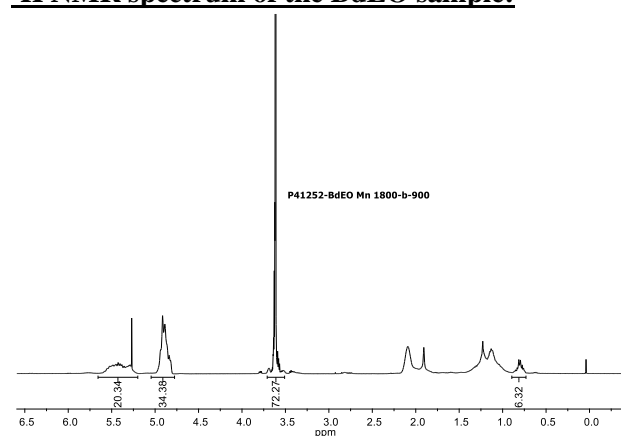
Characteristics:

1. tBu ester at 1367cm-1 disappear to COOH
2. from COCl to DBCO amide C=O shifted to 1662 cm-1

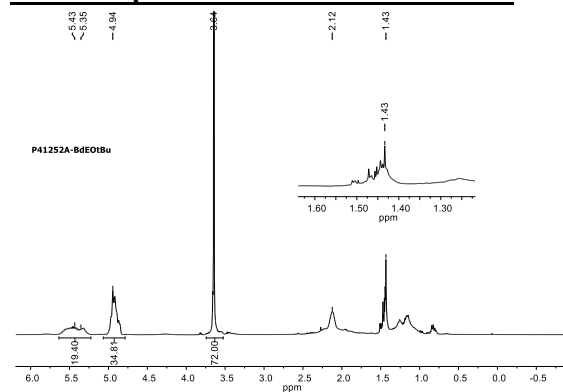
¹H NMR spectrum of the BdOH terminated:



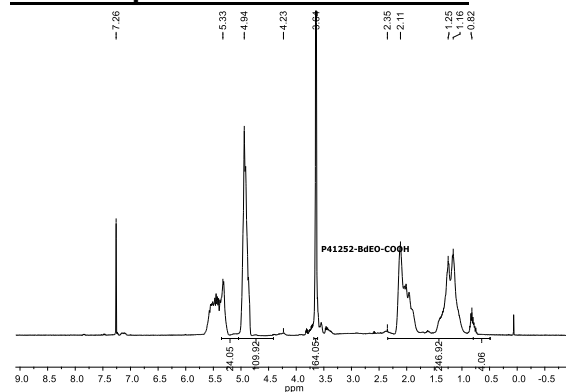
¹H NMR spectrum of the BdEO sample:



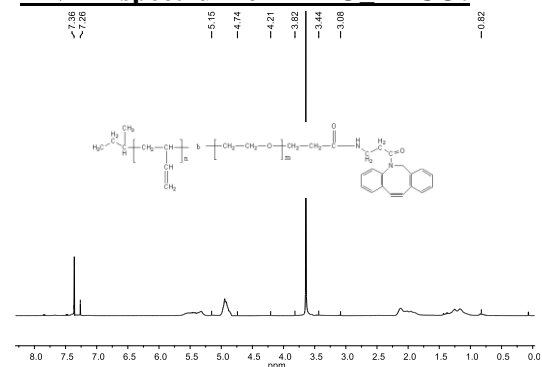
¹HNMR spectrum of BDEO-tBuA ester:



¹HNMR spectrum of BDEO-COOH:

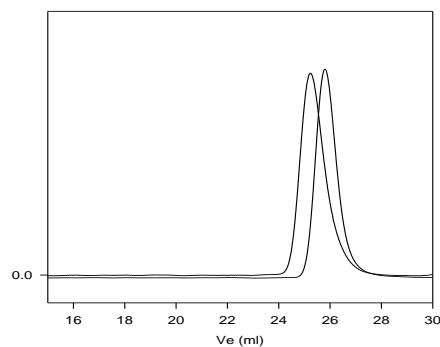


¹HNMR spectrum of BDEO DBCO:



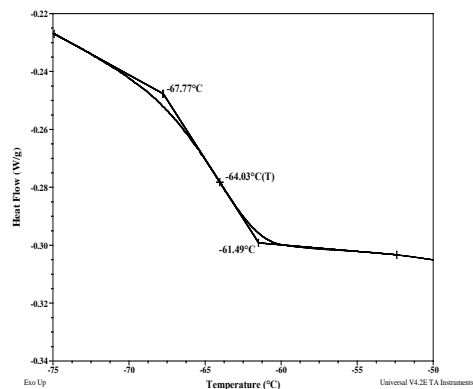
SEC profile of the BdEO Sample:

P41252-BdEO

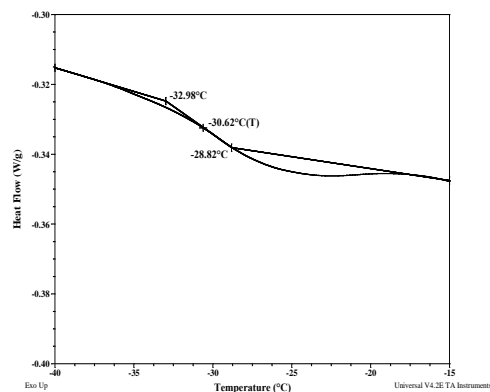


Size exclusion chromatography of poly(butadiene-b-ethylene oxide):
 — OH terminated 1,2 polybutadiene $M_n=1900$, $M_w=2000$, $PI=1.09$
 — Block Copolymer PBd(1900)-b-PEO(900), $PI=1.09$
 (Chemical composition From ¹HNMR)

Thermogram for PEO block:



Thermogram for PBd block:



Thermal analysis results at a glance

For Bd block		
T_g : -31°C		
For PEO block		
T_g : -64°C	T_m : 48°C	T_c : Not found

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.

Melting curve for PEO block:

