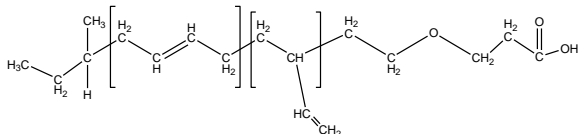


Sample Name: Poly(1,2-butadiene)-*b*-poly(ethylene oxide)

Sample #: P40537-BdEOCOOH

Structure:



Composition:

$M_n \times 10^3$ (g/mol) [PBd- <i>b</i> -PEO]	M_w/M_n	Polybutadiene: 1,2-addition
1.2- <i>b</i> -0.6	1.17	89 %

Thermal properties of PBd-*b*-PEO:

Glass transition temperature (T_g):	-21.5 °C
Melting point (T_m):	38 °C

Thermal properties of PBdEO-COOH:

Glass transition temperature (T_g):	-32.5 °C
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Synthesis procedure:

By anionic process. Lot# P 9089-BDEO was used to convert terminal group to propionic acid.

Characterization:

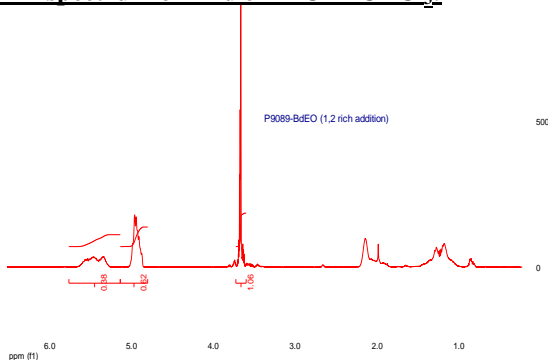
The product was characterized by size exclusion chromatography (SEC) and ¹H NMR.

Thermal analysis of the diblock copolymer was performed on TA Instruments Q100 differential scanning calorimeter (DSC) under a nitrogen atmosphere. The glass transition temperature (T_g) and melting temperature (T_m) of the polymer were measured at a scan rate of 10°C/min shortly after creating thermal history of the sample. The glass transition temperature (T_g) was determined as a midpoint of step change in heat flow curve for the second heating scan.

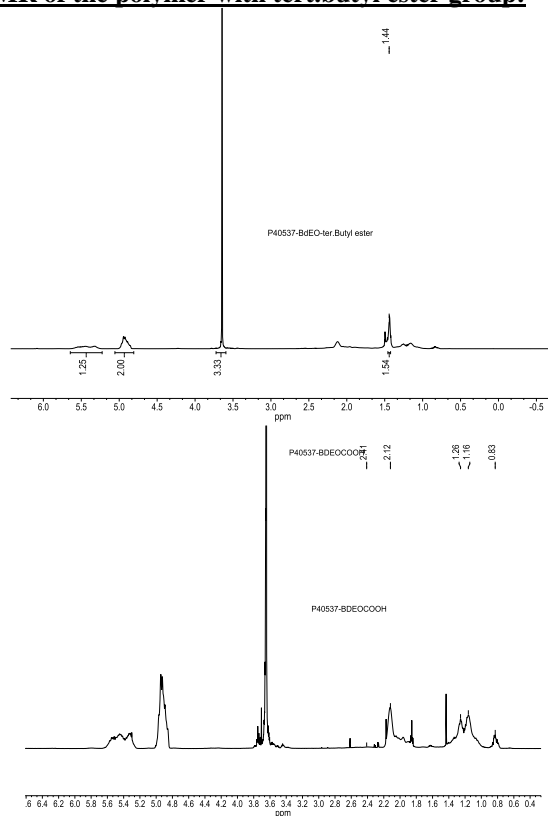
Solubility:

The poly(butadiene-*block*-ethylene oxide) is soluble in THF, chloroform, toluene. Solubility in hexanes, methanol, ethanol and water depends on the composition of the diblock copolymer.

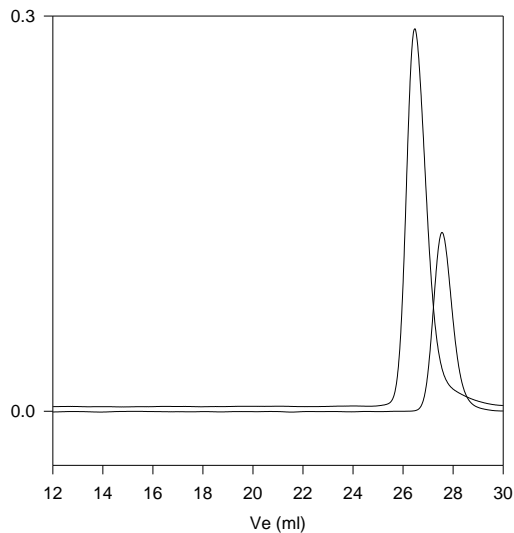
¹H NMR spectrum of PBd-*b*-PEO in CDCl₃:



HNMR of the polymer with tert.butyl ester group:



P9089-Bd_{1,2 rich}EO

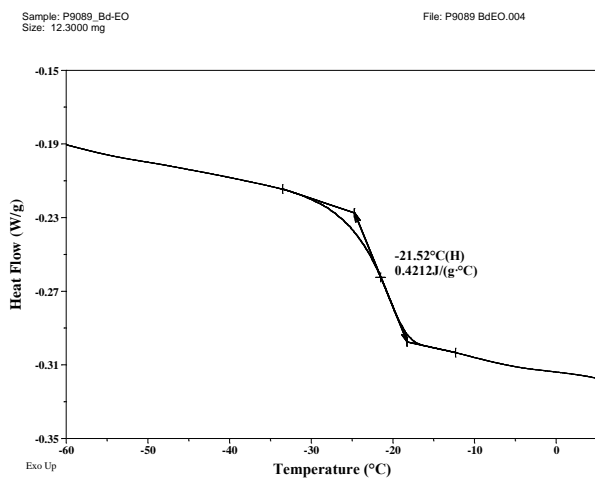


Size Exclusion Chromatogram of Poly(butadiene-*b*-ethylene oxide)

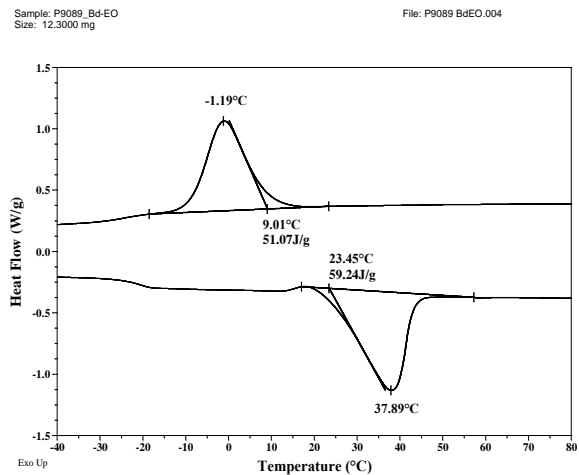
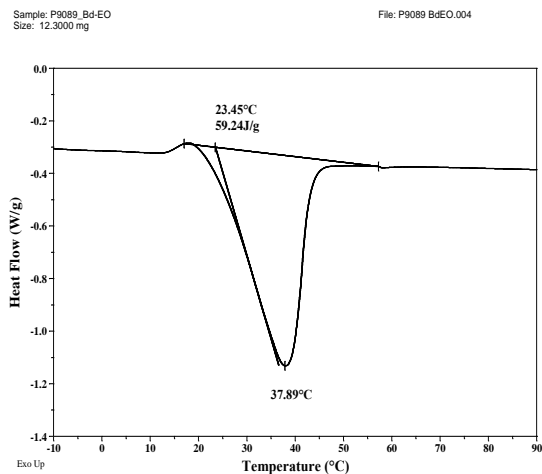
— Polybutadiene: $M_n=1200$, $M_w=1350$, $M_w/M_n=1.12$
 — PBd-*b*-PEO: M_n PBd(1200)-PEO(600), $M_w/M_n=1.17$
 The M_n of PEO is calculated from NMR results,

DSC thermograms of PBd-*b*-PEO diblock copolymer:

- Glass transition temperature (2nd heating scan, 10°C/min):



- Melting point (3rd heating scan, 10°C/min) and crystallization temperature (3rd cooling scan, 10°C/min):



DSC analysis after converting terminal OH to COOH

Sample: P40537-BdEOCOOH
Size: 8.0000 mg

File: P40537.001

