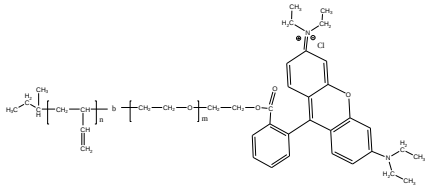
Sample Name: **Rhodamine B –terminated Poly(1,2-butadiene)-*b*-poly(ethylene oxide)**

Sample # **P9089A-BdEO-Rhodamine B**

Structure:



Composition:

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

Thermal properties of PBd-*b*-PEO:

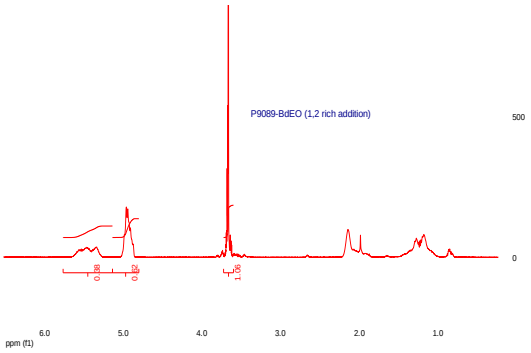
Glass transition temperature (T_g):	–21.5 °C
Melting point (T_m):	38 °C

Synthesis:
The polymer was synthesized by anionic polymerization process.

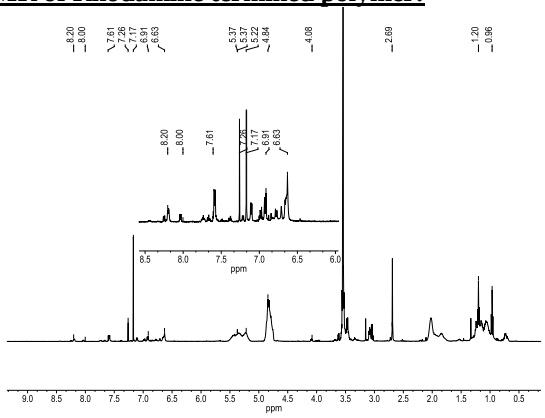
Characterization:
The product was characterized by size exclusion chromatography (SEC) and ^{1}H NMR.

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.

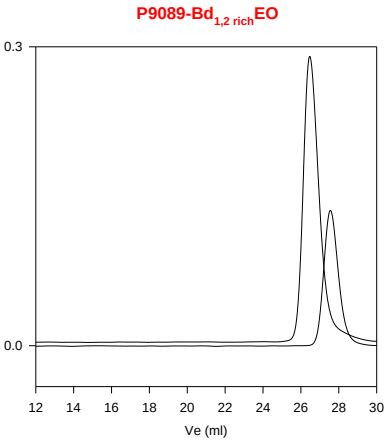
^{1}H NMR spectrum of PBd-*b*-PEO in $CDCl_3$:



^{1}HNMR of Rhodamine termined polymer:



SEC elugrams of PBd and PBd-*b*-PEO:



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

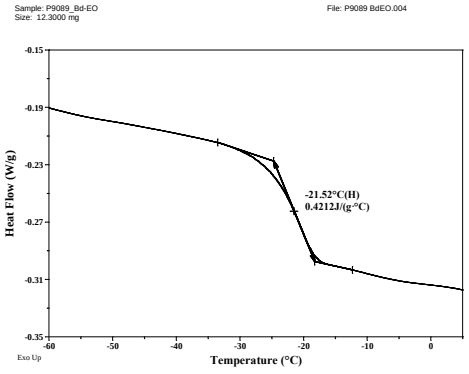
—— Polybutadiene: M_n=1200, M_w=1350, M_w/M_n=1.12

—— PBd-b-PEO: M_n PBd(1200)-PEO(600), M_w/M_n=1.17

The Mn 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):