Sample Name: **Poly(styrene-b-ε-caprolactone)**

Sample #: **P2069-SCL**

**Structure:**
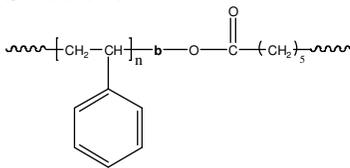
Composition:

Mn x 10^3 S-b-CL	Mw/Mn (PDI)
27.0-b-10.0	1.15

Synthesis procedure:

Poly(styrene-b-ε-caprolactone) is prepared by anionic polymerization with sequence addition of styrene followed by n-butyl methacrylate. The reaction scheme is shown below:
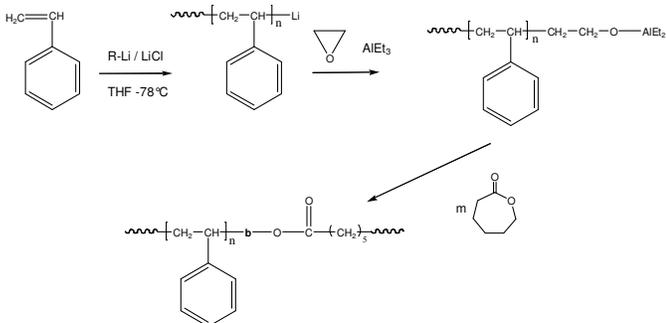
Characterization:

An aliquot of the polystyrene block was terminated before addition of - ε -caprolactone and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from ^{1}H-NMR spectroscopy by comparing the peak area of the styrene protons at 6.3-7.2 ppm with the peak area of - ε -caprolactone protons at 4.1 ppm. Block copolymer PDI is determined by SEC.

Solubility:

Poly(styrene-b- ε -caprolactone) is soluble in THF, Chloroform, DMF, and precipitated in methanol and hexanes.

SEC elugram of the block copolymer

Sample ID-P2069-SCl

Concentration (mg/mL)	1.4418
Sample dn/dc (mL/g)	0.0890
Method File	PS80K-June30-2015-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF
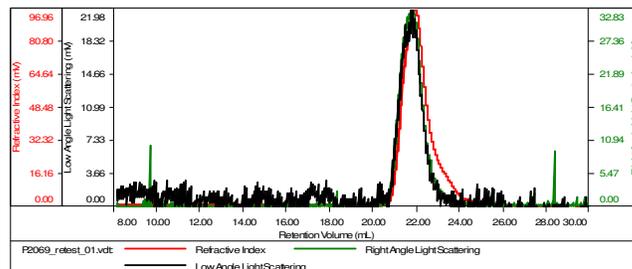
Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersity	Intrinsic Viscosity (dL/g)
P2069_retest_01.vdt	37,376	42,789	46,957	1.144	0.7929