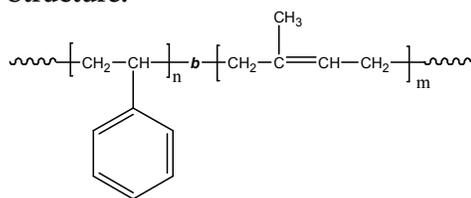


**Sample Name: Poly(styrene-b-isoprene-  
(1,4-addition))**

**SEC of Sample P4017:**

**Sample #: P4017-SIp**

**Structure:**



**Composition:**

$M_n \times 10^3$ S-b-IP	PDI
67.5-b-12.5 (from $^1\text{H-NMR}$ 70.0-b-16.1)	1.05
$T_g$ for IP block: Not distinct	$T_g$ for PS block: 101°C

**Synthesis Procedure:**

Poly(styrene-b-isoprene) is prepared by living anionic polymerization in non-polar solvent with sequence addition of styrene followed by isoprene.

**Characterization:**

An aliquot of the anionic polystyrene block was terminated before addition of isoprene and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The block copolymer composition was then calculated from  $^1\text{H-NMR}$  spectroscopy by comparing the peak area of the vinylic isoprene proton at 5.1 ppm with the aromatic protons of polystyrene at 6.3-7.2 ppm. Copolymer PDI is determined by SEC.

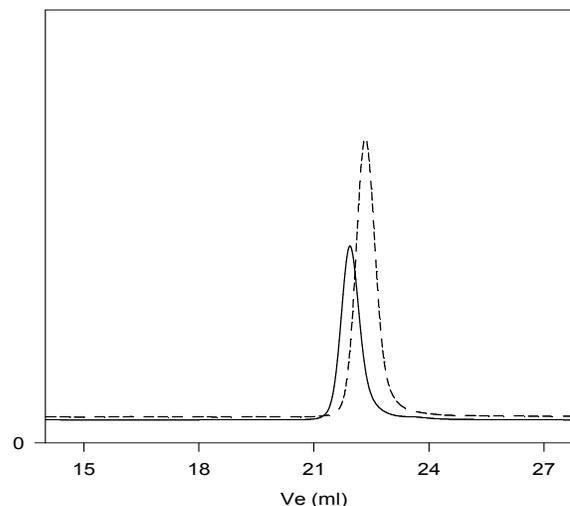
**Thermal analysis:**

Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature ( $T_g$ ) has been considered.

**Solubility:**

Poly(styrene-b-isoprene) is soluble in THF, toluene, dioxane and  $\text{CHCl}_3$ . This polymer readily precipitates from methanol, ethanol, and water.

**P4017-SIp**



Size exclusion chromatography of polystyrene-b-polyisoprene  
—— Polystyrene,  $M_n=67500$ ,  $M_w=70500$ ,  $PI=1.05$

----- Block Copolymer PS(67500)-b-PIp(12500),  $PI=1.05$   
Composition from H NMR and by light scattering  
Solution Viscosity: 0.471 dl/g in THF at 30°C.  
Radius of Gyration: 11.07 nm (VISCOTECK DETECTORS)

**DSC thermogram for PS block:**

