

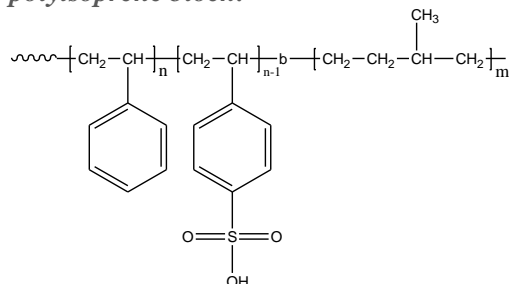
**Sample Name: Poly (4-styrene sulfonic acid)-b-poly (2-methyl butylene)**

**Polymer obtained by the hydrogenation of (Poly (styrene -b- isoprene rich in 1,4-addition) and its sulfonation on Polystyrene fraction**

**Sample #: P41837-SSO3HMB**

**Structure:**

**1,4-rich microstructure for hydrogenated polyisoprene block:**



**Composition:**

Mn x 10 <sup>3</sup> SSO3H-b-MB	Mw/Mn (PDI)
11.8-b-10.5	1.08

% of sulfonation	5%
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**Synthesis Procedure:**

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

**Characterization:**

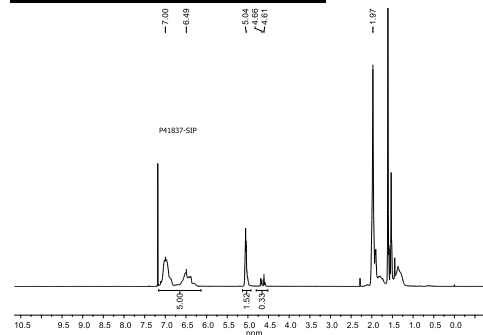
The product was characterized by size exclusion chromatography (SEC) and <sup>1</sup>H NMR.

**Sample:** P41837

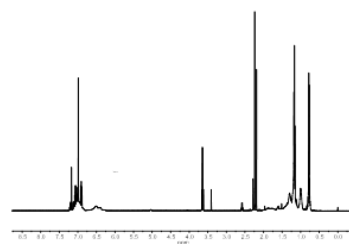
Analysis	Method	Result	Basis	Sample Amount Used
C : Carbon	GLI Procedure ME-14	67.73 %	As Received	2.184 mg
H : Hydrogen	GLI Procedure ME-14	8.03 %	As Received	2.537 mg
O : Oxygen	GLI Procedure E8-4	20.61 %	As Received	2.627 mg
S : Sulfur	GLI Procedure E16-3	0.742 %	As Received	16.782 mg

**Solubility:** Poly (SSO3H-b-hydrogonated isoprene) is soluble in THF.

**<sup>1</sup>H-NMR Spectrum of the block copolymer Poly (styrene-b-isoprene)**

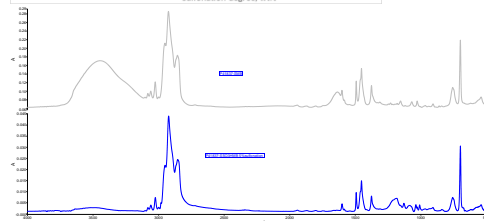
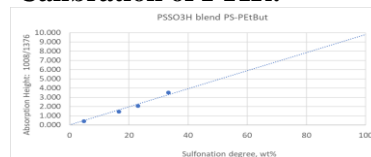


**<sup>1</sup>H-NMR Spectrum of the block copolymer Poly (styrene-b-isoprene) after Hydrogenation:**

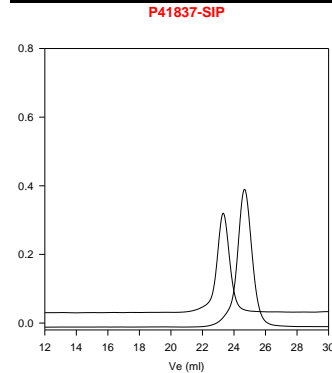


**FTIR of the SSO3H-MB**

**Calibration of FTIR:**



**SEC elugram of the block copolymer:**



Size exclusion chromatography of polystyrene-b-polyisoprene<sub>1,4</sub> addition  
— Polystyrene, M<sub>n</sub>=11,500, M<sub>w</sub>=12,500 PDI=1.09  
— Block Copolymer:  
PS-IP(11,500)-b-PI(10,500), PDI=1.08 (by H NMR)