

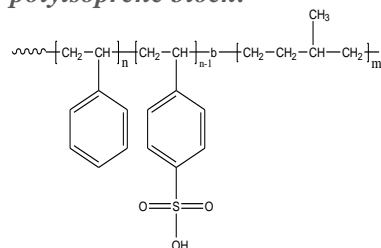
Sample Name: Poly (4-styrene sulfonic acid)-b-poly (2-methyl butylene)

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

Sample #: P41837A-SSO3HMB

Structure:

1,4-rich microstructure for hydrogenated
polyisoprene block:



Composition:

Mn x 10 ³ SSO3H-b-MB	Mw/Mn (PDI)
13.0-b-10.5	1.08

% of sulfonation	20%
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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 ¹H NMR.

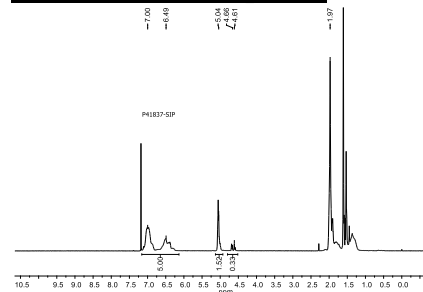
Sample: P41837-A

Analysis	Method	Result	Basis	Sample Amount Used
C : Carbon	GLI Procedure ME-14	76.01 %	As Received	1.101 mg
H : Hydrogen	GLI Procedure ME-14	8.50 %	As Received	3.765 mg
O : Oxygen	GLI Procedure E8-4	11.64 %	As Received	1.881 mg
S : Sulfur	GLI Procedure E16-3	3.65 %	As Received	45.657 mg

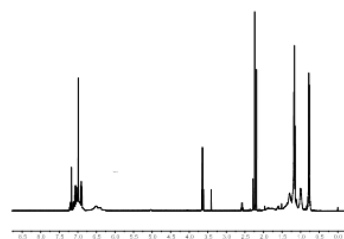
Solubility:

Poly (SSO3H-b-hydrogenated isoprene) is soluble in THF.

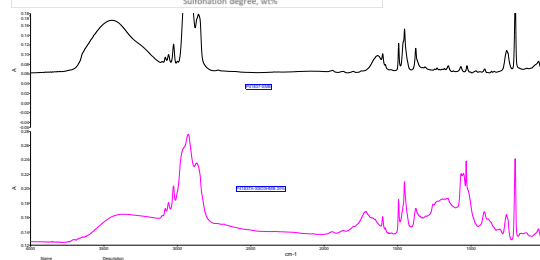
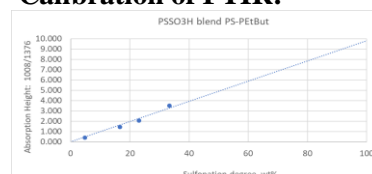
¹H-NMR Spectrum of the block copolymer Poly (styrene-b-isoprene)



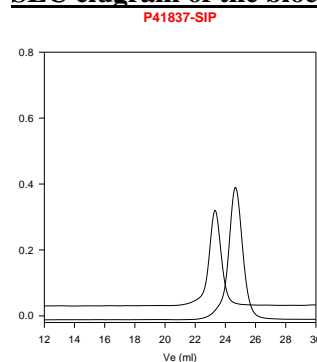
¹H-NMR Spectrum of the block copolymer Poly (styrene-b-isoprene) after Hydrogenation:



FTIR of the SSO3H-MB Calibration of FTIR:



SEC elugram of the block copolymer:



Size exclusion chromatography of polystyrene-b-polyisoprene, 1,4 addition
— Polystyrene, M_n=11,500, M_w=12,500 PI=1.09
— Block Copolymer:
PS-IP(11,500)-b-PI(10,500), PI=1.08 (by H NMR)