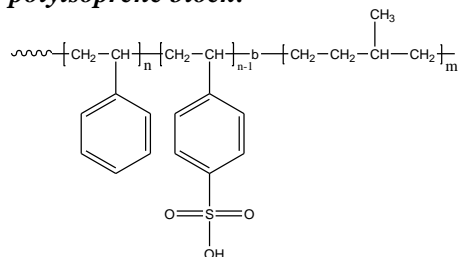


Sample Name: Poly (4-styrene sulfonic acid)-b-poly (2-methyl butylene)

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

Sample #: P41868-SSO3HMB

For Sulfonation lot# P41839A-SMB was taken 1,4-rich microstructure for hydrogenated polyisoprene block:



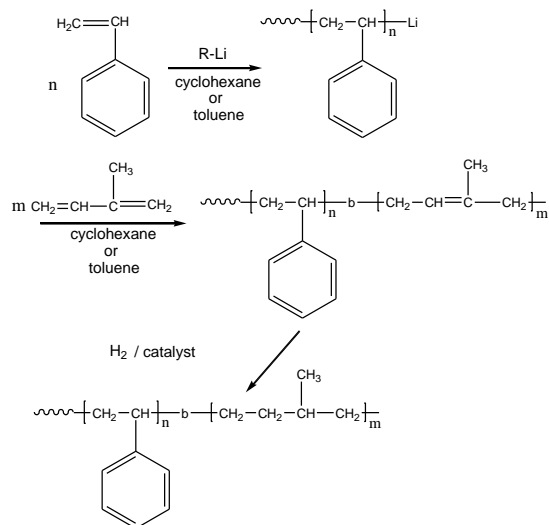
Composition:

Mn x 10 ³ S-b-MB	Mw/Mn (PDI)
12.0-b-11.5	1.02

% of sulfonation	2%
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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. The scheme of the reaction is illustrated below:



Characterization:

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

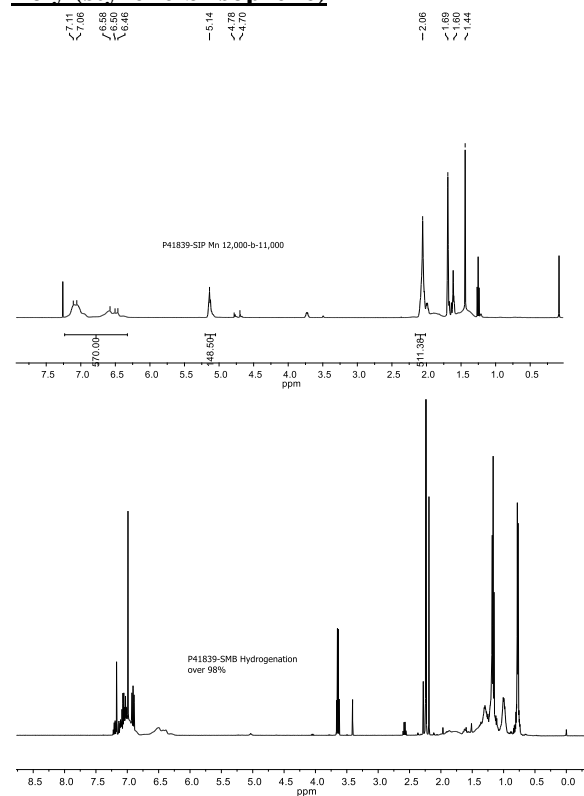
Solubility: Poly (styrene-b-hydrogenated isoprene) is soluble in THF, CHCL3 and toluene.

Purification:

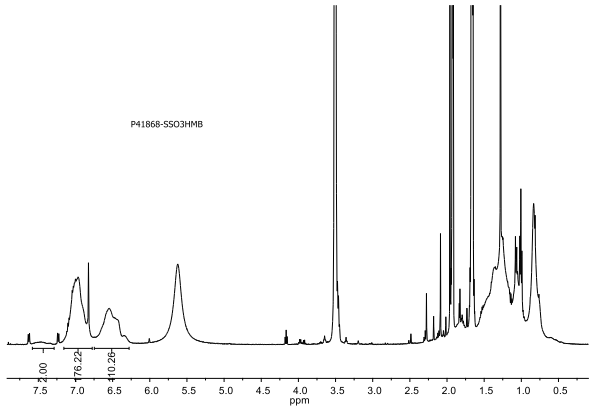
Purification of the obtained polymer was carried out rigorously as follows to ensure the removal of the catalyst side product:

1. Dissolved the polymer in warm toluene and Solution filtered and than passed through a column packed with basic silica at +40 °C. .
2. Solution concentrated precipitated in ethanol.
3. Polymer redissolved in toluene and passed again through the silica packed column till get a light color solution. Polymer was recovered and dissolved in benzene and filter through a filter paper and the solution freeze dried from benzene. Final dried under vacuum for 48h at 50°C.

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

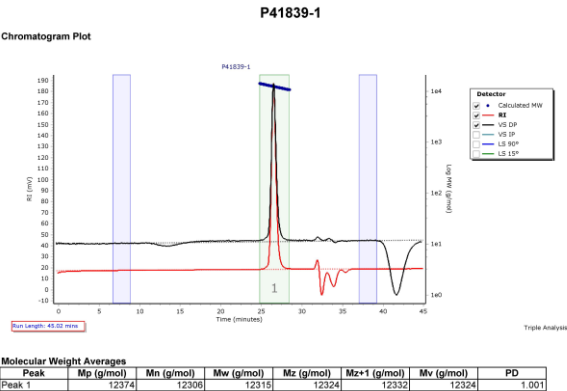


HNMR of the SSO3H-MB run in acetone:



SEC elugram of the first block:

Agilent GPC/SEC Software



After Hydrogenation:

SEC elugram of the block copolymer:

Agilent GPC/SEC Software

