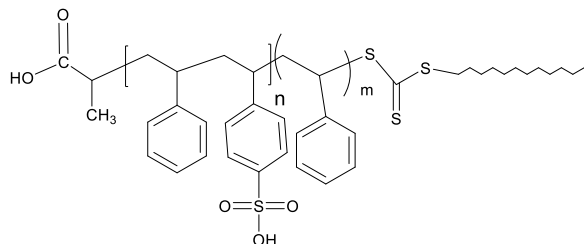


Sample Name:
Poly(styrene-co-Styrene sulfonic acid -b-Styrene)

Sample #: P42596F2-SSSO3Hran-b-S

Structure:

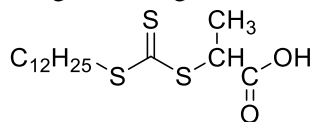


Composition:

Mn × 10 ³ SSSO3Hran-b-S	Mw/Mn (PDI)
41.5-b-7.0	1.45
Sulfonation in the first block	44.0 mole%

Synthesis Procedure:

The polymer is prepared by RAFT polymerization process using following RAFT reagent:



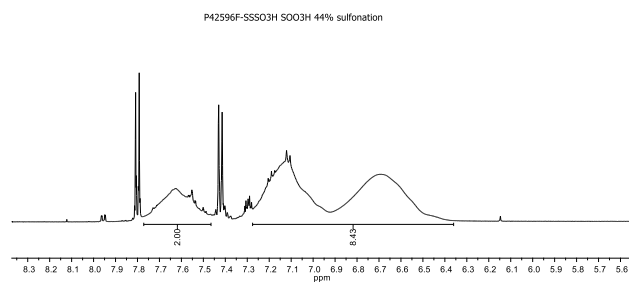
Characterization:

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

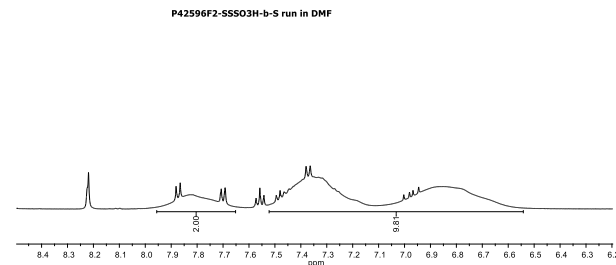
Thermal analysis:

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

¹H-NMR spectrum of the Polymer SSSO3Hran in d6Acetone:

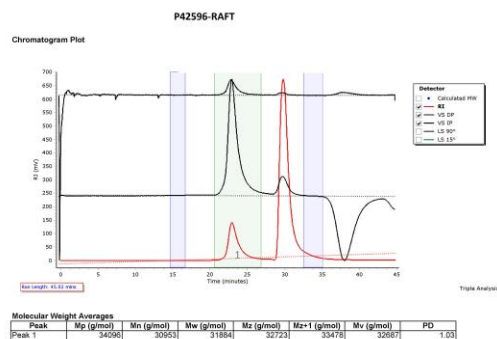


¹H-NMR spectrum of P42596F2-SSSO3Hran-b-S in DMF:



SEC profile of the PS-RAFT starting polymer:

Agilent GPC/SEC Software

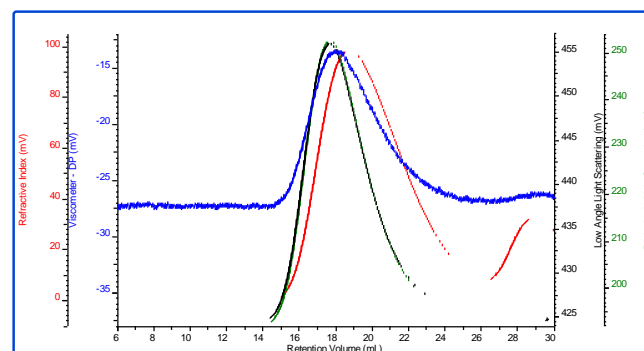


44% sulfonation Mn 41,500

SEC profile after Extension of PS block:

P42596F2-SSSO3Hranb-S

dn/dc	0.1657
Flow Rate	0.7000
Solvent	DMF with LiBr
Method	PSS column-PMMA60K-Jan3-2019-0013.vcm



Sample	Mn	Mw	Mp	Mw/Mn
P42596F2-SSSO3H-b-S_1	123,882	179,604	183,182	1.450

Mn calculated from its HNMR composition. SEC profile demonstrate absence of First random block polymer.