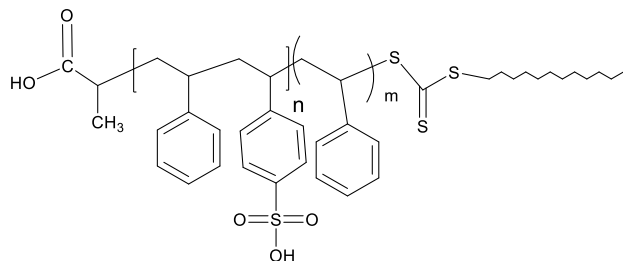


**Sample Name:**  
**Poly(styrene-co-Styrene sulfonic acid -b-Styrene)**

**Sample #:** P42596A2-SSSO3Hran-b-S

**Structure:**

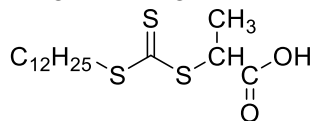


**Composition:**

Mn × 10 <sup>3</sup> SSSO3Hran-b-S	Mw/Mn (PDI)
34.5-b-37.0	1.64
Sulfonation in the first block	15.0 mole%

**Synthesis Procedure:**

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



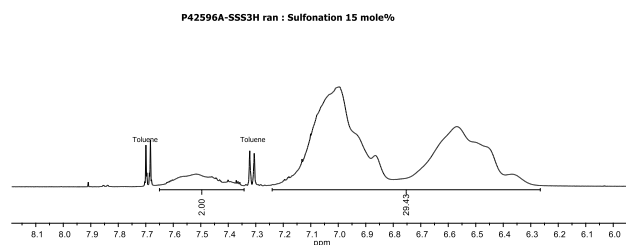
**Characterization:**

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

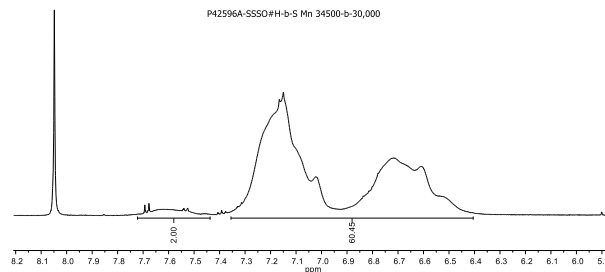
**Thermal analysis:**

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<sub>g</sub>).

**<sup>1</sup>H-NMR spectrum of the Polymer SSSO3Hran in d6Acetone:**

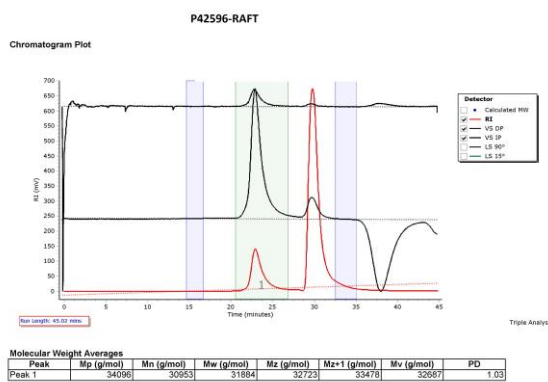


**<sup>1</sup>H-NMR spectrum of P42596A2-SSSO3Hran-b-S in DMF:**



**SEC profile of the PS-RAFT starting polymer:**

Agilent GPC/SEC Software

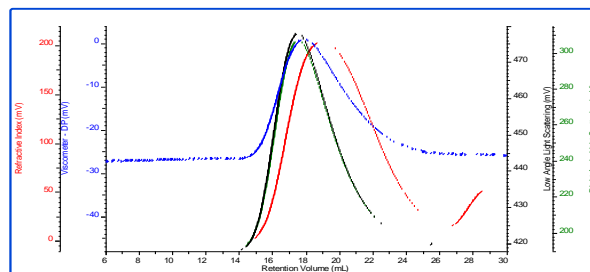


15% sulfonation Mn 34,500

**SEC profile after Extension of PS block:**

**P42596A2- SSSO3Hran-b-S**

dn/dc	0.1670
Flow Rate	0.7000
Solvent	DMF with LiBr
Method	PSS column-PMMA60K-Jan3-2019-0013.vcm



Sample	Mn	Mw	Mp	Mw/Mn
P42596-A2_1_2020-08-18	90,214	148,737	144,462	1.649

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