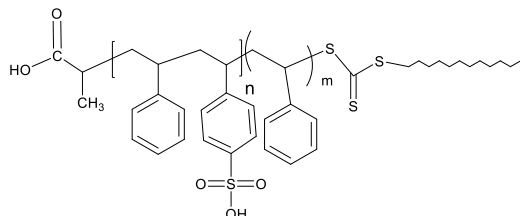


**Sample Name:**  
**Poly(styrene-co-Styrene sulfonic acid -b-Styrene)**

**Sample #:** P42558A-SSSO3Hran-b-S

### Structure:

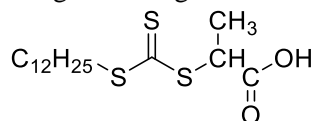


**Composition: Sulfonation in the first block: 4%**

Mn × 10 <sup>3</sup> SSSO3Hran-b-S	Mw/Mn (PDI)
30.0-b-15.0	1.12

### Synthesis Procedure:

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



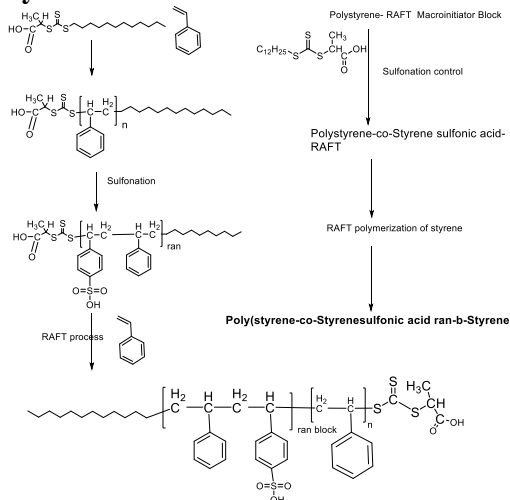
### Characterization:

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

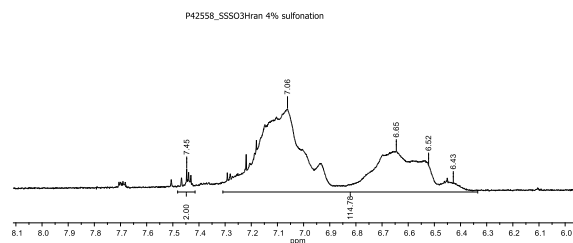
### Thermal analysis:

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>).

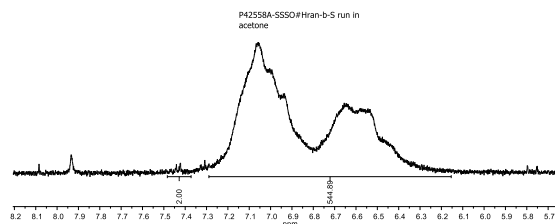
### Synthesis route:



### <sup>1</sup>H-NMR spectrum of the Polymer: First random block:

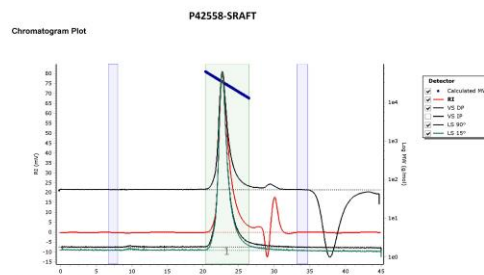


### <sup>1</sup>H-NMR spectrum of P42558A-SSSO3Hran-b-S:



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

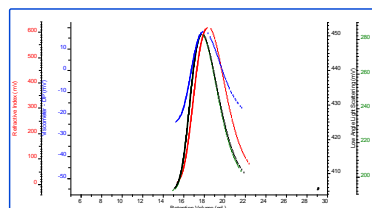
Agilent GPC/SEC Software



Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mz+1 (g/mol)	Mv (g/mol)	PD
1	34,491	28,571	30,057	31,872	33,185	31,675	1.063

### SEC profile After Extension of PS block:

dn/dc	0.1650
Flow Rate	0.7000
Solvent	DMF with LiBr
Method	PSS column-PMMA60K-Jan3-2019-0013.vcm



Sample	Mn	Mw	Mp	Mw/Mn
P42558-A2_1_2020-08-07	44,490	50,014	48,770	1.124