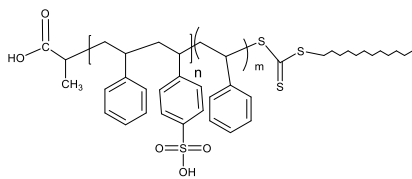


Sample Name:
Poly(styrene-co-Styrene sulfonic acid -b-Styrene)

Sample#: P42608-2-SSSO3Hran-b-S

Structure:

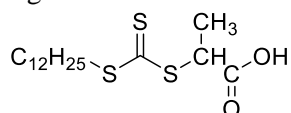


Composition: Sulfonation in the first block: 10%

Mn × 10 ³ SSSO3Hran-b-S	Mw/Mn (PDI)
31.0-b-25.0	1.52
% sulfonation in the first Block	10%

Synthesis Procedure:

Polymer is prepared by RAFT process. Following RAFT reagent was used:



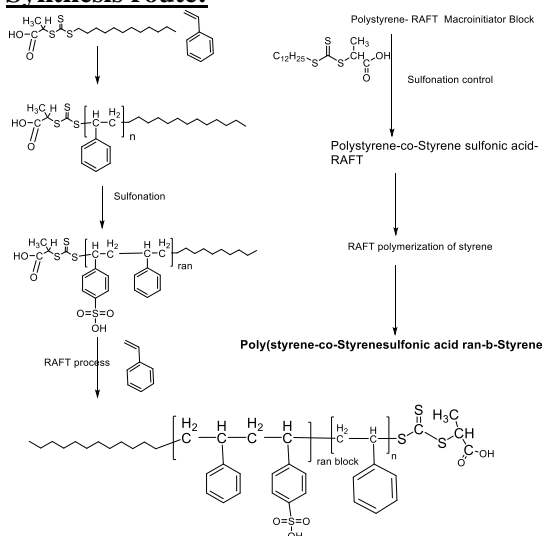
Characterization:

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

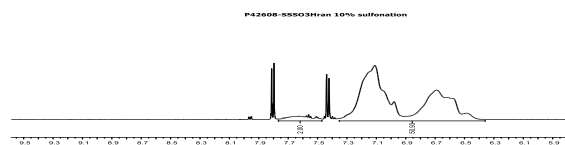
Thermal analysis:

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).

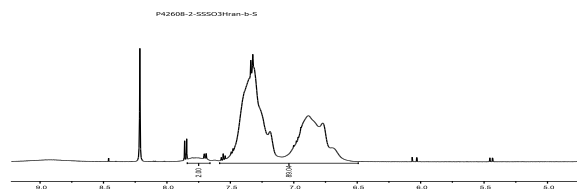
Synthesis route:



¹H-NMR spectrum of the Polymer: First random block:

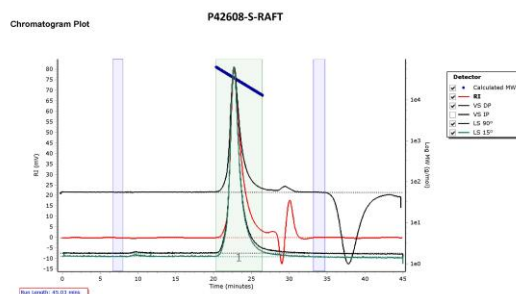


¹H-NMR spectrum of PSSSO3Hran-b-S in DMF:



SEC profile of the PS-RAFT starting polymer:

Agilent GPC/SEC Software



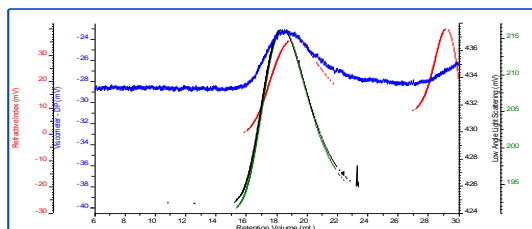
Peak	Mp (g/mol)	Mn (g/mol)	Mw (g/mol)	Mz (g/mol)	Mw+1 (g/mol)	Mv (g/mol)	PD
1	33461	28571	30357	31872	33180	31675	1.063

% sulfonation: 10% Mn 31,000

SEC profile after Extension of PS block:

P42608A-2 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
P42608-2_1_2020-08-25	127,697	195,232	222,120	1.529

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