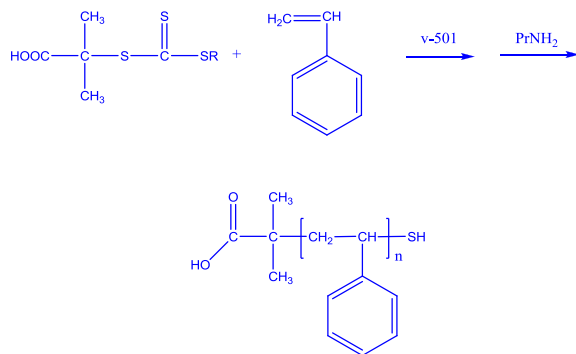


Sample #: **P6695 SCOOHSH**

CC(C)(C(=O)O)C(Cc1ccccc1)CC(C)(C)S

$M_n \times 10^3$	PDI	Functionality %
2.3	1.25	95
T_g ($^{\circ}\text{C}$)	78	

The hetero-functional terminated Polystyrene was prepared by RAFT polymerization of styrene in dioxane followed by aminolysis to liberate thiol. The scheme of the reaction is illustrated below:



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).

P6695-SCOOHSH

Size exclusion chromatography of functionalized α -Carboxy- ω -Thiol terminated Polystyrene:

- Methyl esterified α -Carboxy- ω -Thiol Polystyrene: $M_n = 2300$, $M_w = 2850$, $M_w/M_n = 1.25$
- - - α -Carboxy- ω -Thiol Polystyrene:

Peak down-shift because of carboxy interaction with column

¹H NMR spectrum of P6695-SCOOHSR in CDCl₃.

Chemical structure of P6695-SCOOHSR:

O=S(=O)(O)C1=CC=C(C=C1)SCC2=CC=CC=C2C(=O)C3=CC=C(C=C3)C(=O)C4=CC=C(C=C4)SCC5=CC=CC=C5S(=O)(=O)C

Peak assignments and chemical shifts (ppm):

- Aromatic protons (H_a): 7.421, 7.420, 7.420, 7.420, 7.135, 6.711
- Methylene protons (H_b): 5.796, 5.794, 5.760, 5.750, 5.749, 5.271, 5.270, 5.269, 5.248
- Methoxy protons (H_c): 3.717
- Sulfonate methyl protons (H_d): 3.274, 3.266
- Sulfonate methyl protons (H_e): 1.630, 1.619, 1.276, 0.902

Integration values:

- 8.22
- 46.29
- 63.98
- 121.4
- 107.4
- 82.10
- 100.2
- 82.19
- 82.19
- 63.00

Heat Flow (W/g)

73.30°C

78.03°C(T)

82.22°C

Exo Up

Temperature (°C)

Universal V4.2E TA Instruments