

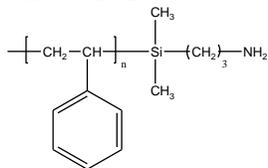
Sample Name:

Amino Terminated Polystyrene

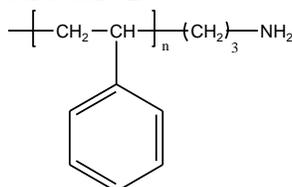
Sample #: P10457-SNH2

This bears structure # 2

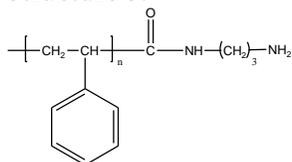
Structure 1:



Structure 2:



Structure 3:

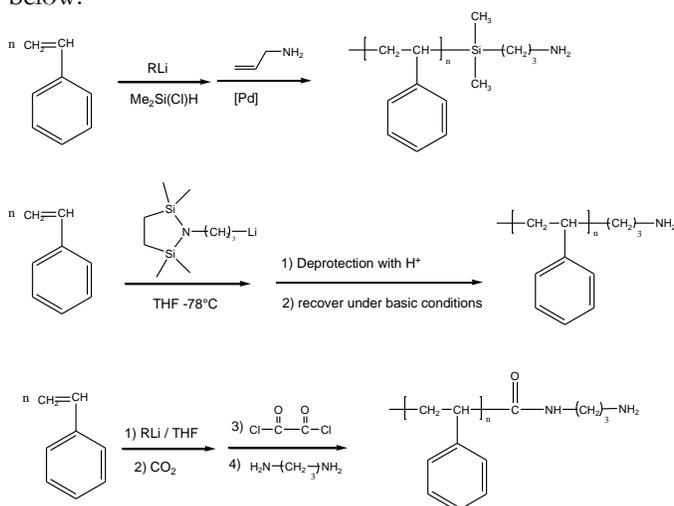


Composition:

$M_n \times 10^3$	PDI
46.0	1.07
T_g (°C)	102 oC

Synthesis Procedure:

α,ω -amino terminated polystyrene was synthesized by anionic living polymerization with different end-grouping strategies. The reaction schemes are shown below:



Characterization:

The molecular weight and polydispersity index of this polymer were determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector. However, amino terminated polystyrene was found to interact with chromatography columns and therefore the amino group was protected by reaction with 1-naphthyl isocyanate before GPC analysis. Removal of the protecting group was confirmed by UV spectroscopy and the degree of functionality was confirmed by titration with HClO₄ using crystal violet as the indicator.

Thermal analysis:

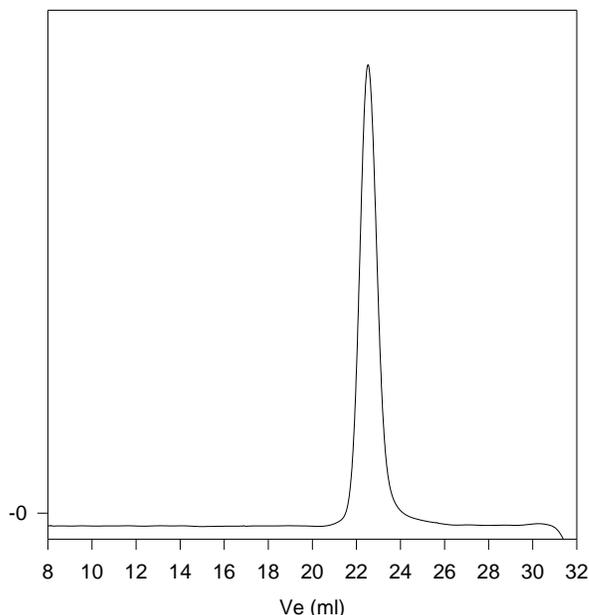
Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°C/min. The midpoint of the slope change of the heat flow plot of the second heating scan was considered as the glass transition temperature (T_g).

Solubility:

Polymer is soluble in THF, CHCl₃, toluene and precipitated out from methanol and hexane.

SEC of Sample:

P10457-SNH2



Size exclusion chromatography of Amino Terminated polystyrene

$M_n=46,000$, $M_w=49,500$, $PI=1.07$ functionality > 0.98%