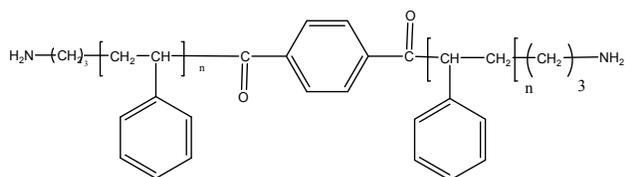


### Sample Name:

### $\alpha$ - $\omega$ Diamino Terminated Polystyrene

### Sample #: P11163-S2NH2

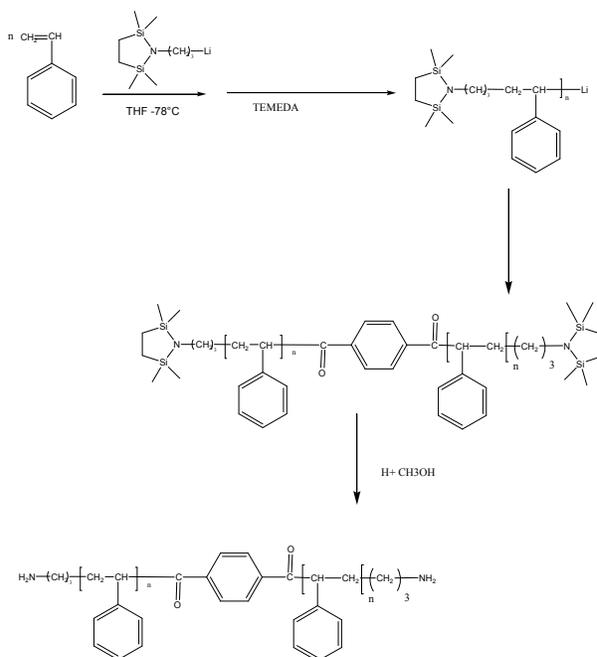


### Composition:

$M_n \times 10^3$	PDI
30	1.35
$T_g$ ( $^{\circ}C$ )	102

### Synthesis Procedure:

$\alpha$ ,  $\omega$ -amino terminated polystyrene was synthesized by anionic living polymerization.



### Characterization:

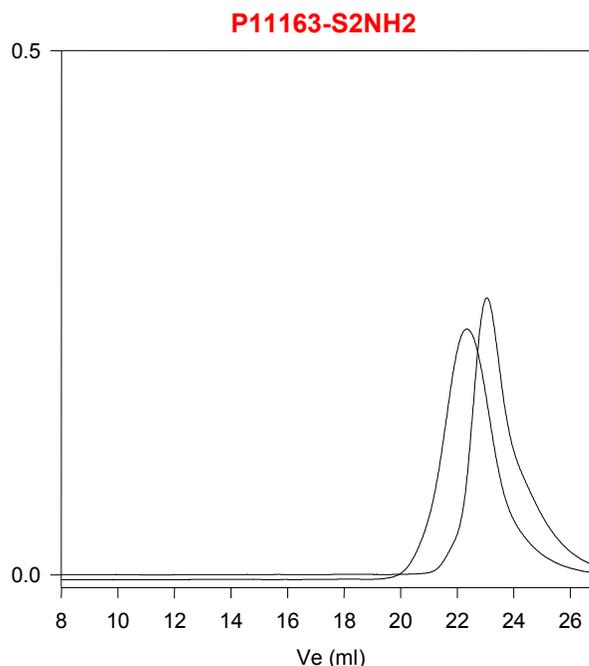
The molecular weight and polydispersity index of this polymer were determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector. However, amino terminated polystyrene was found to interact with chromatography columns and therefore 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  $HClO_4$  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  $10^{\circ}C/min$ . 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,  $CHCl_3$  toluene and precipitated out from methanol and hexane.

### SEC of Sample:



Size exclusion chromatography of diamino terminated polystyrene. (NH2 group end capped with 1-naphthyl isocyanate)

$M_n$  15,000  $M_w/M_n$  1.3 before linking

After linking reaction

$M_n=30,000$ ,  $M_w=40,500$ , PDI=1.35, functionality=1.95.