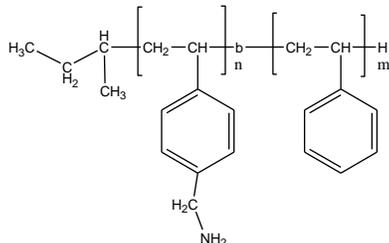


Sample Name:

Poly(4-amino methyl styrene-b-Styrene)

Sample #: P11425-4AMSS

Structure:

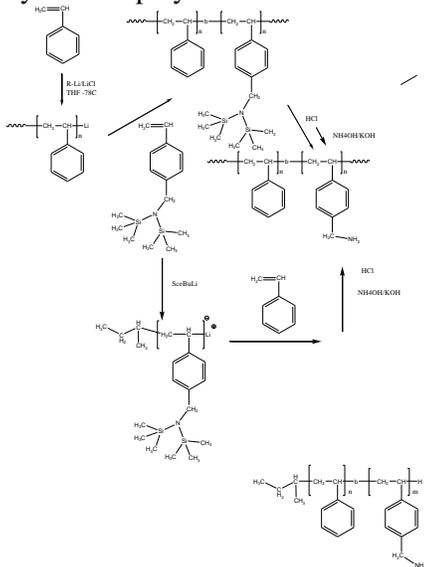


Composition:

| | |
|----------------------------------|-------------|
| Mn x 10 ³ 4AMS-b-S | Mw/Mn (PDI) |
| 2.5-b-9.0 | 1.2 |

Synthesis Procedure:

Poly(4-amino methyl styrene-b-Styrene) is obtained by anionic polymerization.



Characterization:

Polymer analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from ¹H-NMR spectroscopy by comparing the peak area of the styrene protons at 6.3-7.2 ppm with the peak area at 3.76. HNMR analysis was carried out in CdCl₃ for the amino protected group with trimethyl silyl groups. Block copolymer PDI is determined by SEC.

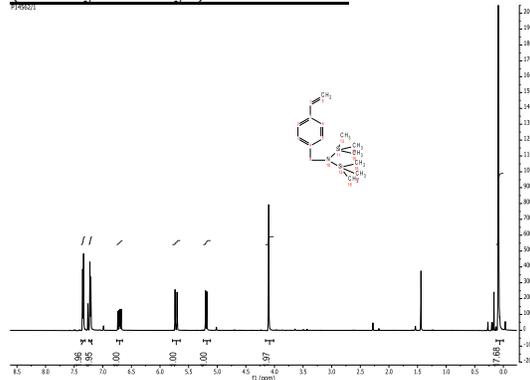
Solubility of the polymer

Poly(4-amino methyl styrene-b-Styrene) polymer (protected Amino compound) is soluble in THF, CHCl₃, Toluene. Once the trimethyl silyl group removed the amino methyl styrene (salt with HCl) block polymer was found insoluble in most of the solvents. It was brought back to free amino group by treatment with NH₄OH solution in THF/water mixture. The solubility of such type of polymer in different solvent is based on its composition: The following table illustrate the solubility in the following solvents:

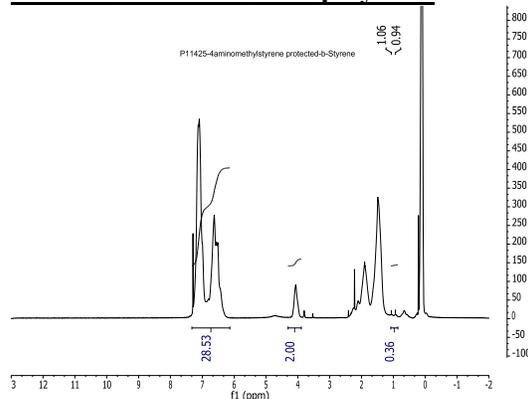
| THF | THF/Methanol 90:10 | CHCl ₃ | DMF | DMF- CH ₃ OH 95:5 | DMF:THF 50:50 |
|--------------------|-----------------------|-------------------|-------------------|------------------------------------|------------------|
| Opaque solution | Insoluble | opaque | Soluble in Hot | soluble | soluble |

Partial Solubility: The solution light blue coloration illustrates formation of micelles.

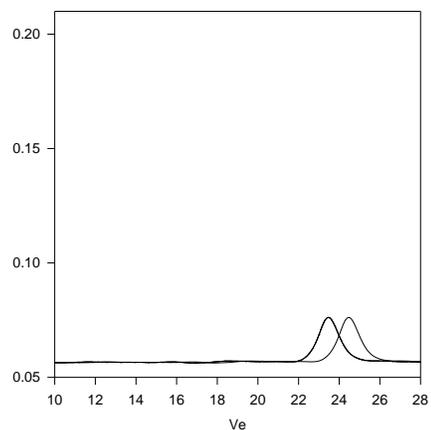
HNMR of the Monomer 1,1,1,3,3,3-Hexamethyl-2-(4-vinyl-benzyl)-disilazane:



HNMR of the Diblock copolymer:



SEC profile of the block copolymer



Size Exclusion Chromatography of:

- 4-Amino MS protected first block , $M_n=5,000$ Mw: 6,400, PI=1.09
 - 4AMS protected-bS Diblock (5,000)-b-PS(9,000) PI=1.2
- After deprotection of amino groups:
Mn 2,500-b-9,000 Mw/Mn 1.2