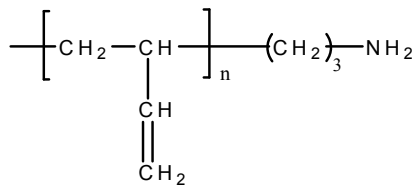


Sample Name: Amino Terminated Polybutadiene, 1, 2- rich microstructure

Sample #: P3952-BdNH₂

Structure:

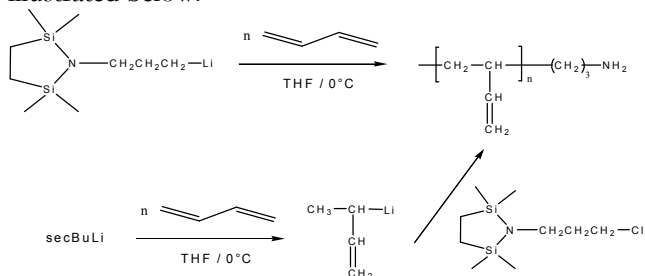


Composition:

$M_n \times 10^3$	PDI
29.0	1.09
Functionality	>90%
T_g	-17°C

Synthesis Procedure:

Amino terminated polybutadiene (1,2 addition) was prepared by anionic living polymerization of butadiene in polar solvent such as THF with initiation by an amino protected organo-lithium compound such as 2, 2,5,5-tetramethyl-1-(3-lithiopropyl)-1-aza-2,5-disilacyclopentane or termination of polymerization reaction (initiated by Sec. BuLi initiator) by 2,2,5,5-tetramethyl-1-(3-chloropropyl)-1-aza-2,5-disilacyclopentane, followed by deprotection of NH₂ functional group. The scheme of the reaction is illustrated below:



Characterization:

The molecular weight and polydispersity index (PDI) are obtained by size exclusion chromatography (SEC) in THF. SEC analysis was performed on a Varian liquid chromatograph equipped with refractive and UV light scattering detectors. Three SEC columns from Supelco (G6000-4000-2000 HXL) were used with triple detectors from Viscotek Co.

Functionality: The functionality of polymer was determined by the titration with HClO₄ using crystal violet as the indicator

Thermal Analysis:

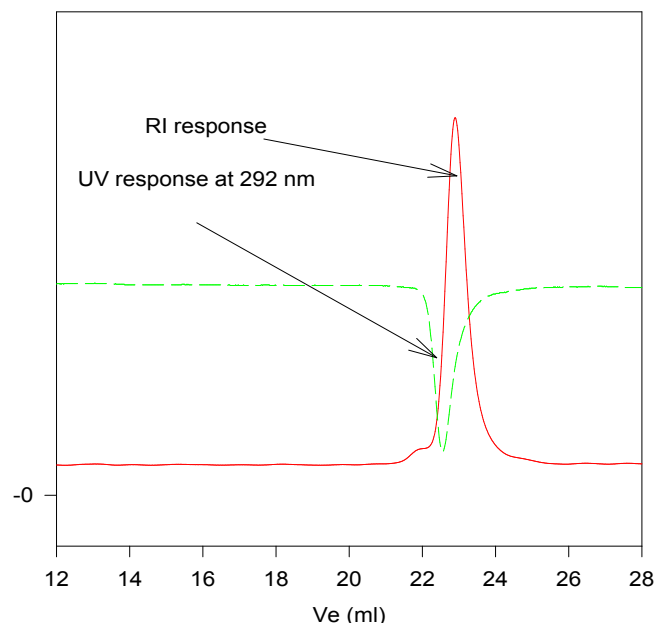
Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature (T_g) of the sample has been considered.

Solubility:

Amino terminated polybutadiene is soluble in DMF, THF, toluene, hexane, cyclohexane and CHCl₃. It precipitates from methanol, ethanol and water.

SEC of Sample:

P3952-BdNH₂ (1,2 rich addition)



Size exclusion chromatography of Amino Terminated polybutadiene end capped with 1-naphthyl isocyanate:

$M_n=29000$, $M_w=31500$, $PI=1.09$, functionality>0.90

DSC thermogram for the sample:

