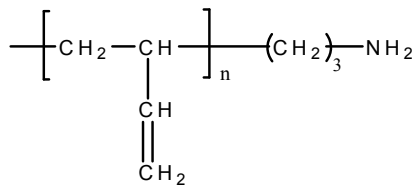


**Sample Name:** Amino Terminated Polybutadiene, 1, 2- rich microstructure

**Sample #:** P3979-BdNH<sub>2</sub>

**Structure:**

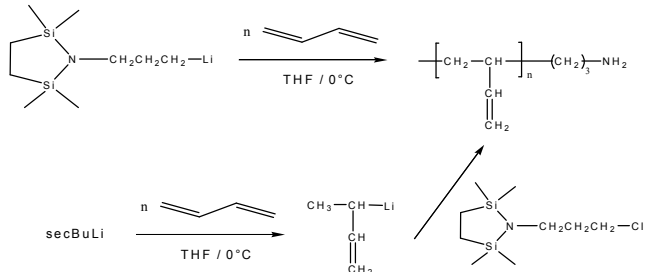


**Composition:**

Mn x 10 <sup>3</sup>	PDI
15.0	1.08
Functionality	>98%
T <sub>g</sub>	-14°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 NH<sub>2</sub> 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 HClO<sub>4</sub> using crystal violet as the indicator

### Thermal Analysis:

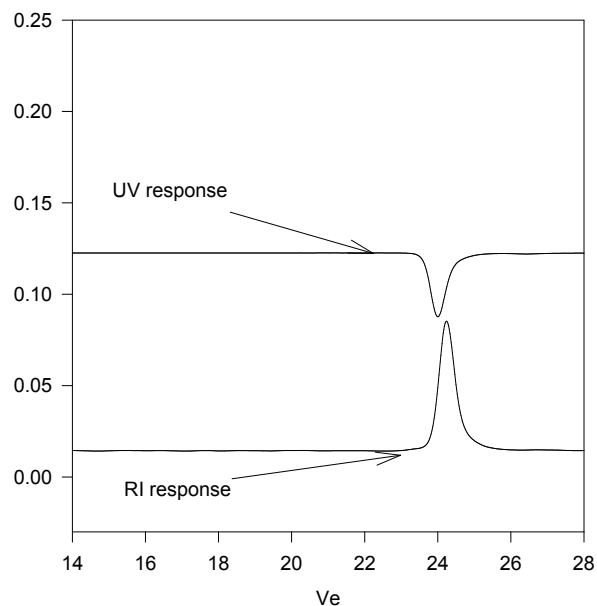
Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature (T<sub>g</sub>) of the sample has been considered.

### Solubility:

Amino terminated polybutadiene is soluble in DMF, THF, toluene, hexane, cyclohexane and CHCl<sub>3</sub>. It precipitates from methanol, ethanol and water.

### SEC of Sample:

**P3979-BdNH<sub>2</sub> (1, 2 addition)**



Size Exclusion Chromatography :

- Mn: 15000 Mw: 16,200 Mw/Mn 1.08 Functionality: > 98%
- UV response at 290nm after end capping NH<sub>2</sub> group with 1-Naphthyl isocyanate

### DSC thermogram for the sample:

