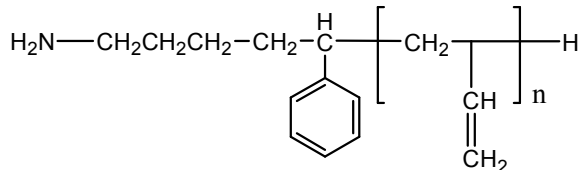


Sample Name: Amino Terminated
Polybutadiene, 1, 2- rich microstructure

Sample #: P11470-BdNH₂

Structure:

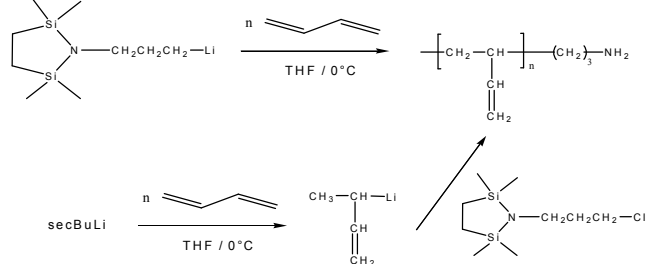


Composition:

Mn x 10 ³	PDI
14.0	1.8
Functionality	>98%
T _g	-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 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:

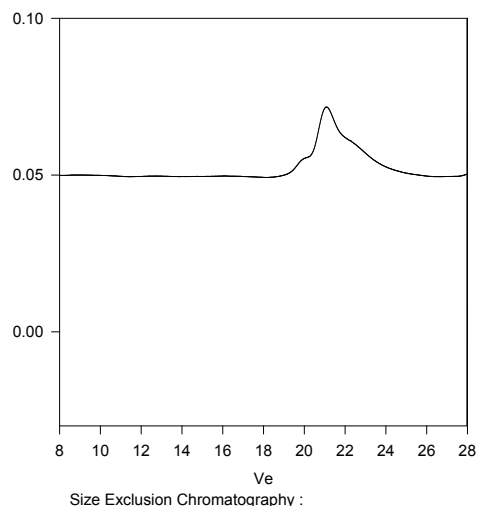
Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature (T_g) of the sample has been considered.

Solubility:

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

SEC of Sample:

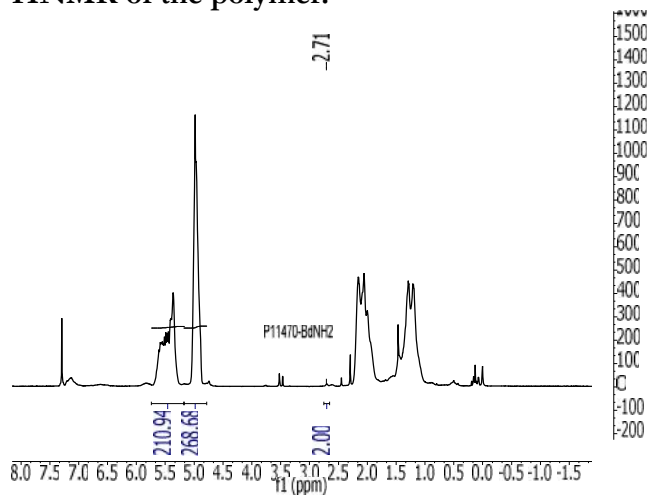
P11470-BdNH₂ (1, 2 addition)



Size Exclusion Chromatography :

— Mn: 14,000 Mw: 25,000 Mw/Mn 1.8 Functionality: > 98%
— UV response at 290nm after end capping NH₂ group with 1-Naphthyl isocyanate

HNMR of the polymer:



DSC thermogram for the sample:

