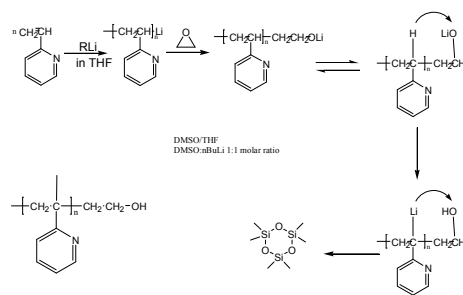
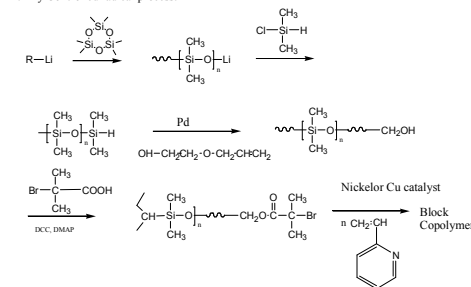


3. Formation of first Poly 2vinyl pyridine OH terminated polymer than reacting the isolated P2VPOH polymer with n BuLi followed by addition of D3 in the presence of DMSO equimolar amount with nBuLi



4. By Controlled radical process:



## Characterization:

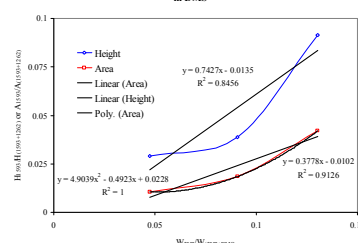
Polymers were analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The block copolymer composition was then calculated from <sup>1</sup>H-NMR spectroscopy by comparing the peak area of the 2-vinyl pyridine proton at about 8.2 ppm with the dimethyl siloxane protons at 0.08 ppm. Copolymer PDI is determined by SEC.

## Thermal analysis:

Thermal analysis of the samples was carried out on a TA Q100 differential scanning calorimeter at a heating rate of 10°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<sub>g</sub>). The melting temperature (T<sub>m</sub>) of the DMS was taken as the maximum of the endothermic peak in the thermogram.

FTIR: The Composition of the polymer were also checked by FTIR.

Relationship between weight fraction & FTIR peak area of 2VP in DMS



## Solubility:

Poly(2-vinyl pyridine-b-dimethyl siloxane) is soluble in THF, CHCl<sub>3</sub> and toluene.

## Thermal analysis results at a glance

Sample	T <sub>m</sub> (°C)	T <sub>c</sub> (°C)	T <sub>g</sub> (°C)
2VP	-	-	77
DMS	-40	-	-62

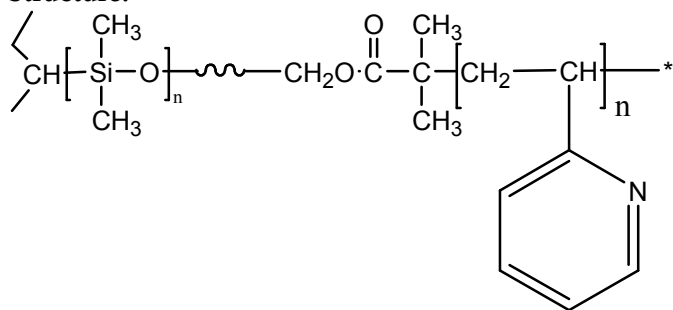
Contd. in next page

## Sample Name: Poly(2-vinyl pyridine-b-dimethylsiloxane)

## Sample #: P5670A-2VPDMS

By controlled radical process

Structure:



## Composition:

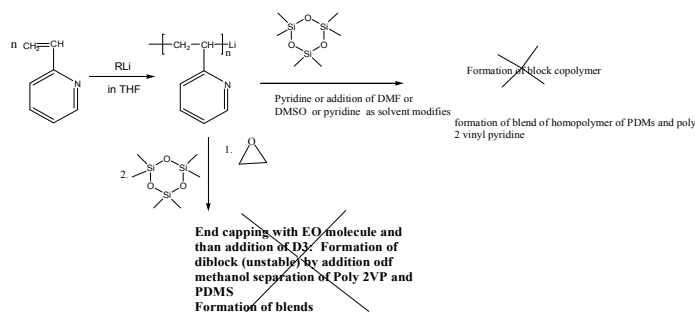
M <sub>n</sub> × 10 <sup>3</sup> 2VP-b-DMS	M <sub>w</sub> /M <sub>n</sub>
3.0-b-2.0	1.19

## Synthesis Procedure:

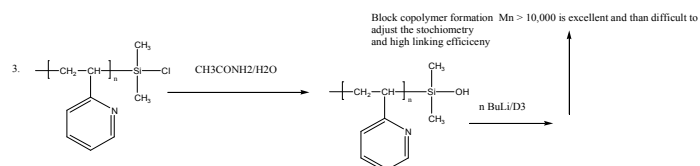
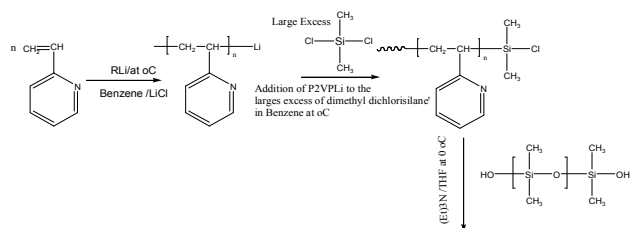
Poly(2-vinyl pyridine-b-dimethylsiloxane) is synthesized by one of the following routes.

Different routes for the synthesis of poly 2 vinyl pyridine with polydimethyl siloxane:

1. Direct Anionic Polymerization by sequential addition of 2VP followed by D3 monomer

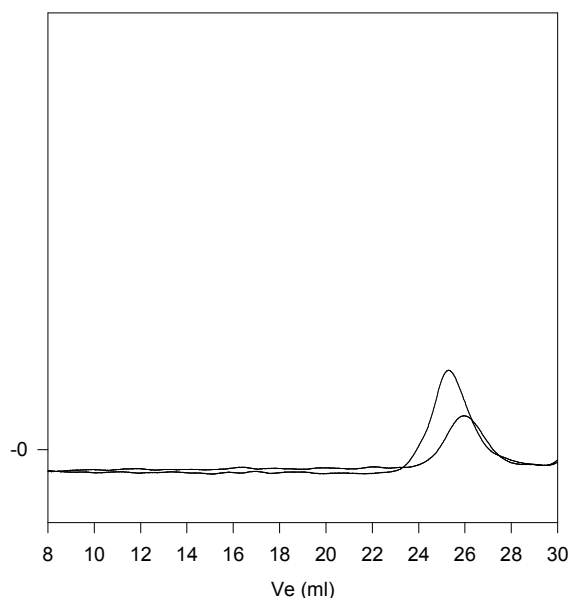


2. From the linking reaction of end functionalized polymer: For the synthesis of Block copolymer > Mn 10,000

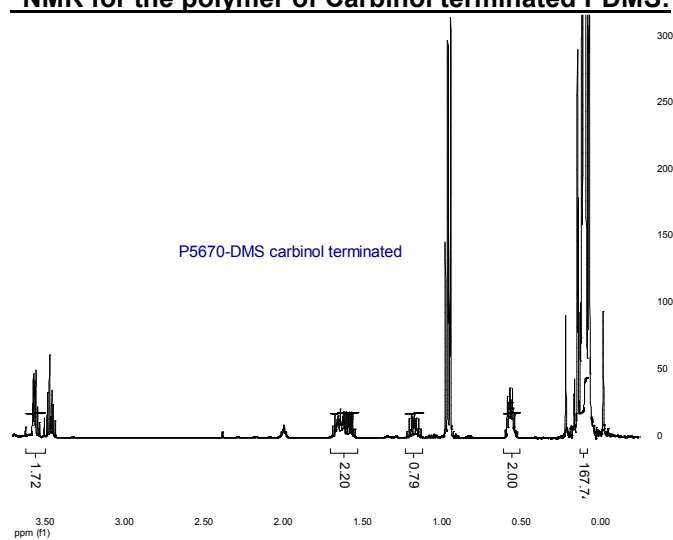


SEC for the polymer:

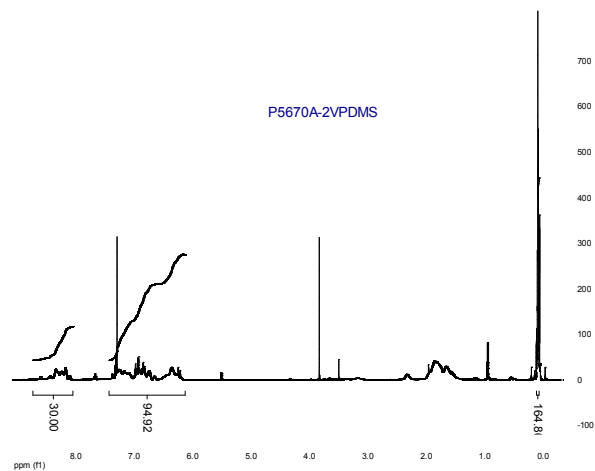
### P5670A-2VPDMS



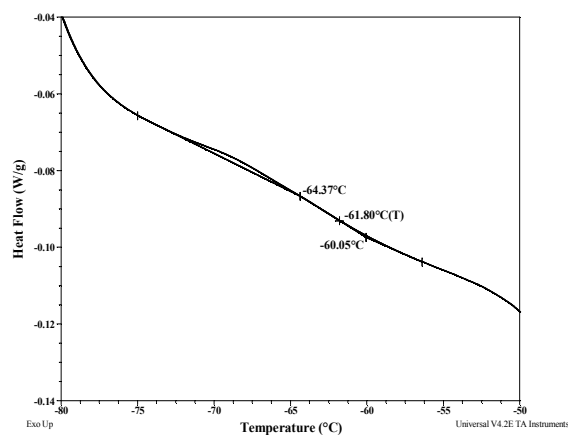
### $^1\text{H}$ NMR for the polymer of Carbinol terminated PDMS:



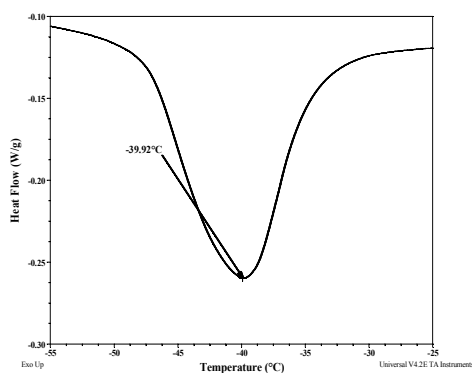
### $^1\text{H}$ NMR for the polymer of P2VP-DMS diblock copolymer:



Thermogram for DMS block:



Melting curve for DMS block:



Thermogram for 2VP block:

