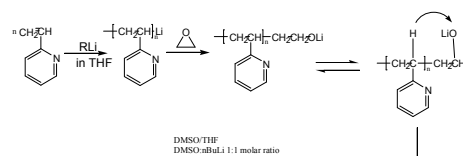
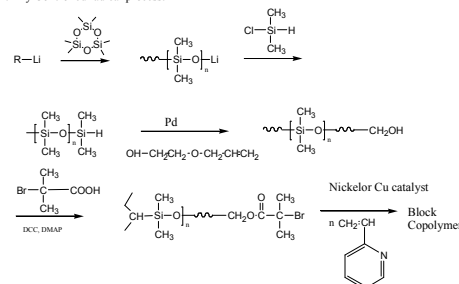


3. Formation of first Poly 2vinyl pyridine OH terminated polymer than reacting the isolated P2VPOH polymer with n BuLi followed by addition of D3 in the presence of DMSO equimolar amount with nBuLi



4. By Controlled radical process:



Characterization:

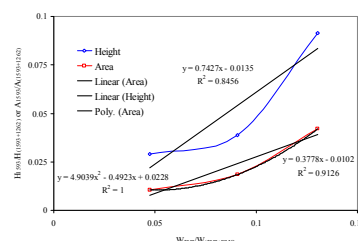
Polymers were analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The block copolymer composition was then calculated from ¹H-NMR spectroscopy by comparing the peak area of the 2-vinyl pyridine proton at about 8.2 ppm with the dimethyl siloxane 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_g). The melting temperature (T_m) 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, CHCl₃ and toluene.

Thermal analysis results at a glance

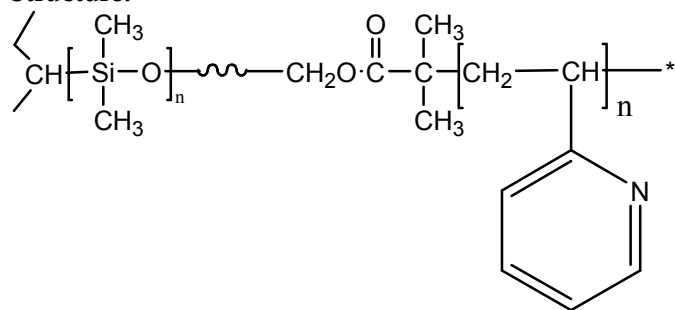
Sample	T _m (°C)	T _c (°C)	T _g (°C)
2VP	-	-	Not detected
DMS	-40	-	-62

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

Sample #: P5673-2VPDMS

By controlled radical process

Structure:



Composition:

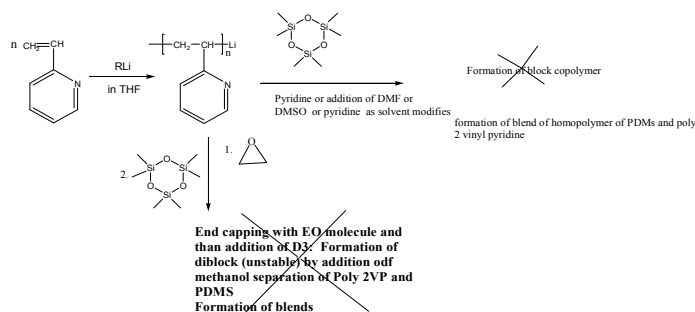
M _n × 10 ³ 2VP-b-DMS	M _w /M _n
0.80-b-2.0	1.18

Synthesis Procedure:

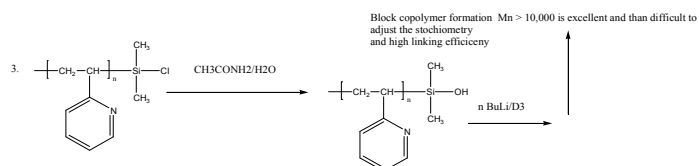
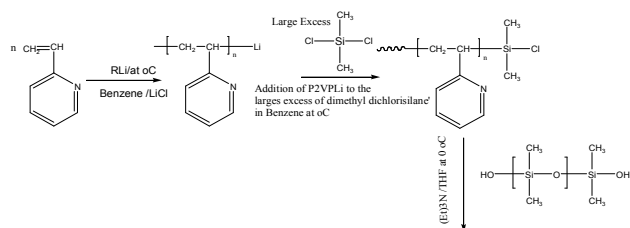
Poly(2-vinyl pyridine-b-dimethylsiloxane) is synthesized by one of the following routes.

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



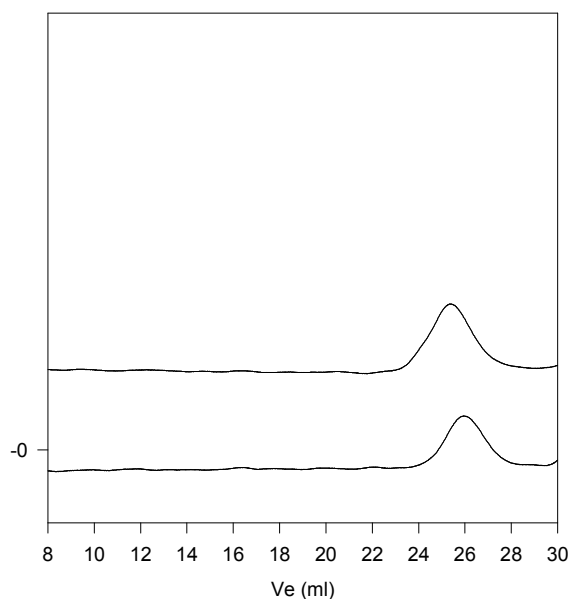
2. From the linking reaction of end functionalized polymer: For the synthesis of Block copolymer > Mn 10,000



Contd. in next page

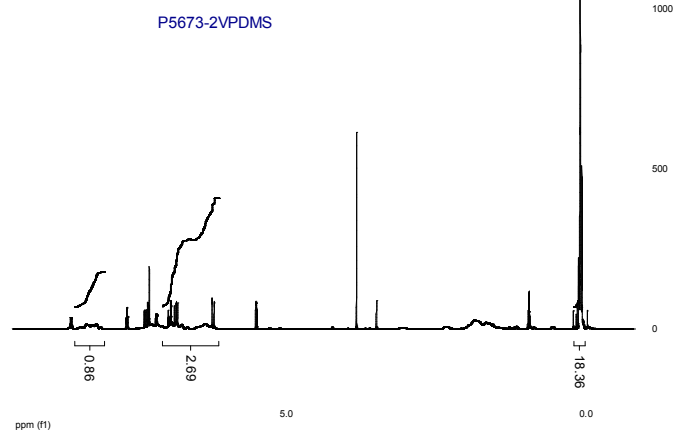
SEC for the polymer:

P5673-2VPDMS

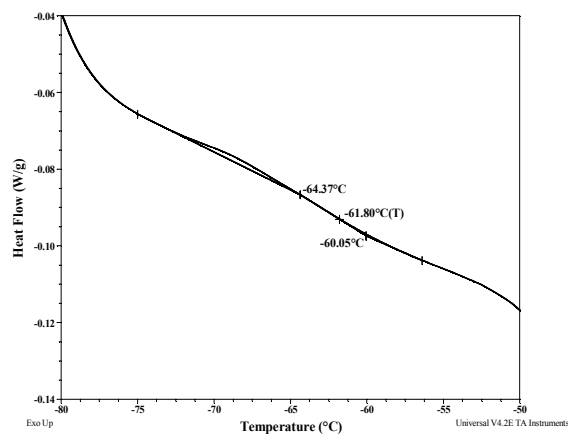


Size exclusion chromatography of

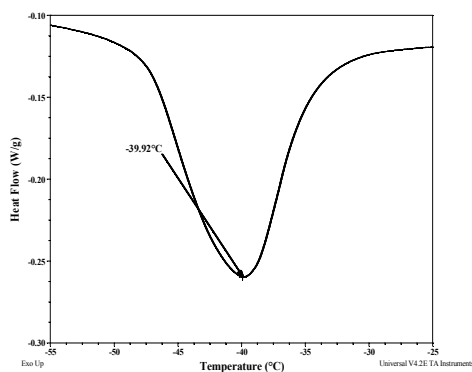
- Poly(DMS)Carbinol terminated, $M_n = 2000$ Mw: 2240 Mw/Mn 1.14
 - Block Copolymer P2VP(800)-b-PDMS(2000), PI= 1.18
- Composition for ^1H NMR



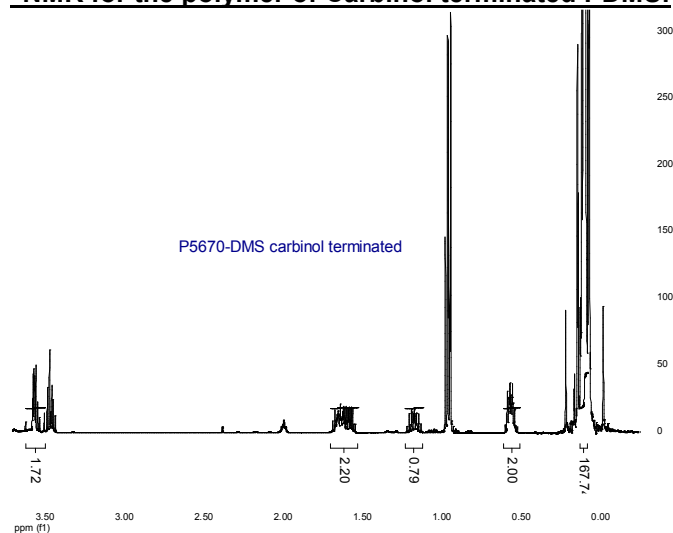
Thermogram for DMS block:



Melting curve for DMS block:



^1H NMR for the polymer of Carbinol terminated PDMS:



^1H NMR for the polymer of P2VP-DMS diblock copolymer: