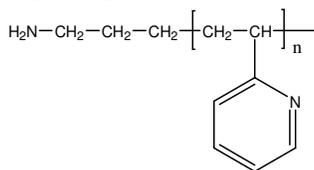


Sample Name:

Amino Terminated Poly(2-vinyl pyridine)

Sample #: P19053-2VPNH2

Structure:

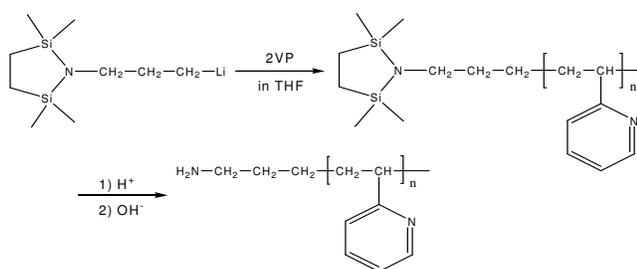


Composition:

Mn x 10 ³	PDI
32.5	1.10
T _g for the polymer	101°C

Synthesis Procedure:

Amino terminated poly(2-vinyl pyridine) was prepared by living anionic polymerization using an amino protected initiator. The scheme of the reaction is illustrated below:



Characterization:

Confirmation of amino end group: The polymer was reacted with Ninhydrin(1,2,3-triketohydrindene hydrate) and it developed a purple color after warming the solution. To confirm the reaction poly (2-vinyl pyridine) without amino functionality was reacted with Ninhydrin and it didn't give any color.

Determination of functionality: 0.5g of the polymer was dissolved in THF and reacted with five fold molar excess of succinic anhydride (purified by sublimation) at room temperature for 12 hours. The polymer was precipitated in hexane. It was dissolved in THF and treated with sodium carbonate to get rid of any unreacted succinic anhydride. It was reprecipitated and dried. The functionality was determined by acid base titration under nitrogen in chloroform with NaOH/CH₃OH, using phenolphthalein as indicator. The molecular weight and polydispersity index of this polymer were determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector.

Thermal analysis:

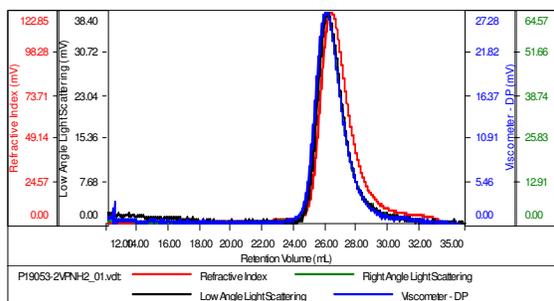
Thermal analysis of the samples was carried out using a differential scanning calorimeter (TA Q100) at a heating rate of 10°C/min. The inflection glass transition temperature (T_g) has been considered.

Solubility: Polymer is soluble in THF, CHCl₃, toluene, benzene methanol ethanol. It precipitated from hexane.

SEC of Sample:

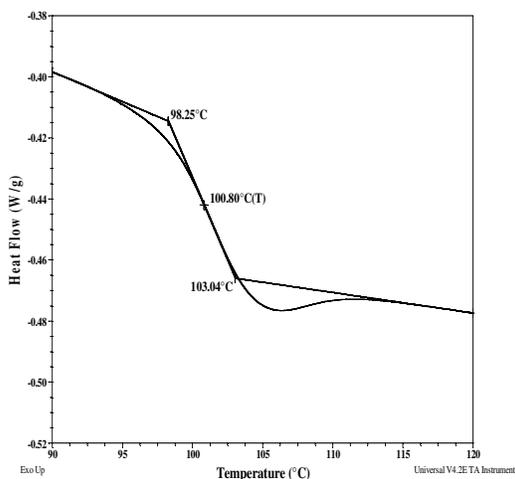
Sample ID: P19053-2VPNH2

Concentration (mg/mL)	4.6198
Sample dn/dc (mL/g)	0.1670
Method File	PS80K-Jan22-2015-0000.vcm
Column Set	3x PL 1113-600
Solvent	THF



Sample	MW Number Average (Da)	MW Weight Average (Da)	MW at Peak (Da)	Polydispersity	Intrinsic Viscosity (dL/g)
P19053-2VPNH2_01.vct	32,565	35,657	37,808	1.101	0.2507

DSC thermogram for the sample:



Reference for further information:

1. Varshney, S. K.; Song, Z.; Zhang, Jian-Xin.; Jerome, Robert. Rapid Communication; J. Polym. Sci. Part A, 2006, 44, 3400.