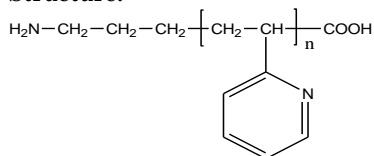


**Sample Name:**  $\alpha$ -Amino  $\omega$ - COOH Terminated Poly(2-vinyl pyridine)

**Sample #:** P18760-2VPNH2COOH

**Structure:**

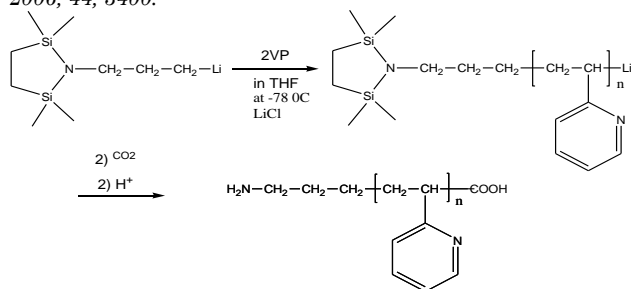


**Composition:**

Mn x 10 <sup>3</sup>	PDI
28.0	1.06
T <sub>g</sub> (°C)	96

#### Synthesis Procedure:

Amino terminated poly(2-vinyl pyridine) was prepared by living anionic polymerization using an amino protected initiator. Polymerization was terminated by dried CO<sub>2</sub>. For details consult our published article: Varshney, S. K.; Song, Z.; Zhang, Jian-Xin.; Jerome, Robert. *Rapid Communication; J. Polym. Sci. Part A, 2006, 44, 3400.*



#### 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. To confirm the reaction, poly (2-vinyl pyridine) without amino functionality was reacted with Ninhydrin and it didn't show 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/CH<sub>3</sub>OH, using phenolphthalien as indicator.

**Determination of Molecular Weight:** Size exclusion chromatography (SEC) was carried out on a Varian liquid chromatograph equipped with UV and refractive detector. A set of SEC column from Supelco was used with THF as the eluent. 3 % of triethyl amine was added to avoid polymer adsorption on the column. The column was calibrated with monodisperse polystyrene standards. The molecular weights and the polydispersity index were calculated.

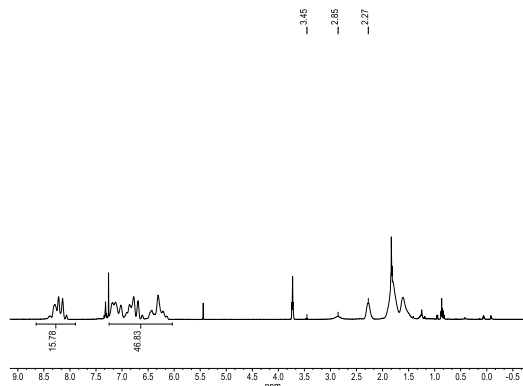
#### Thermal analysis:

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>).

#### Solubility:

Polymer is soluble in THF, CHCl<sub>3</sub>, toluene, benzene methanol ethanol. It precipitated from hexane.

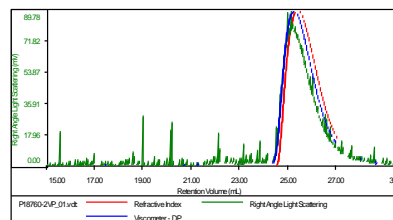
#### H NMR:



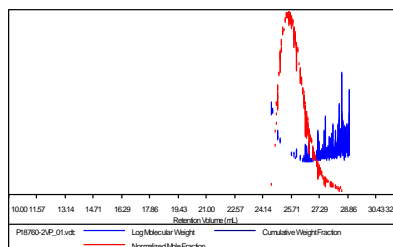
#### SEC of Sample:

**Sample ID:** P18760-2VP-COOHNH2

Concentration (mg/mL)	1.6516
Sample chid: (mL/g)	0.1670
Method File	PS80K-June29-2014-0000.vcm
Column Set	3x PL 1113-6300
Solvent	THF



Sample	Mh	Mw	Mp	Mw/Mh	IV
P18760-2VP_01.vcl	27,990	29,786	30,341	1.064	0.7634



#### DSC thermogram for the polymer:

