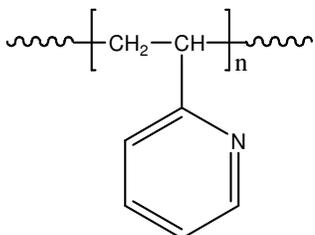


Sample Name: Poly(2-vinyl pyridine)

Sample #: P11467-2VP

Structure:

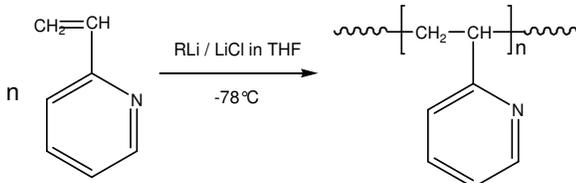


Composition:

| $M_n \times 10^3$ | PDI |
|-------------------|-----|
| 289.0 | 1.5 |

Synthesis Procedure:

Poly(2-vinyl pyridine) is obtained by living anionic polymerization of 2-vinyl pyridine using an adduct of *sec*-butyllithium and diphenyl ethylene-LiCl. Polymerization is carried out in THF at -78°C . Polymerization reaction is terminated using degassed methanol. The reaction scheme is illustrated as follows:



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.

Thermal analysis was performed on TA Instruments Q100 differential scanning calorimeter (DSC) under a nitrogen atmosphere. The glass transition temperature (T_g) of the polymer was measured at a scan rate of $10^\circ\text{C}/\text{min}$ shortly after creating thermal history of the sample.

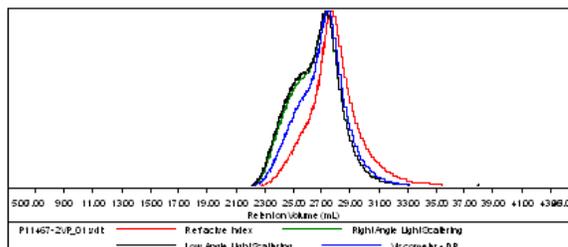
Solubility:

Poly 2 vinylpyridine is soluble in DMF, THF, toluene, methanol, ethanol and CHCl_3 . It precipitates from water and hexane and ether.

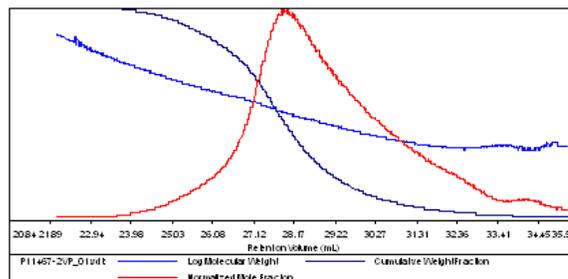
SEC elugram of the polymer:

Sample ID: P11467-2VP

| | |
|-----------------------|--------------------------|
| Concentration (mg/mL) | 9.2676 |
| Sample dn/dc (mL/g) | 0.1670 |
| Method File | PS80 K-Apr-2013-0000.vcm |
| Column Set | 3x PL 1113-6300 |
| System | System 1 |



| Sample | M_n | M_w | M_p | M_w/M_n | M |
|-------------------|---------|---------|---------|-----------|--------|
| P11467-2VP_01.vdt | 289,098 | 430,513 | 358,838 | 1.489 | 1.0118 |



Relationship between T_g and M_n of P2VP:

