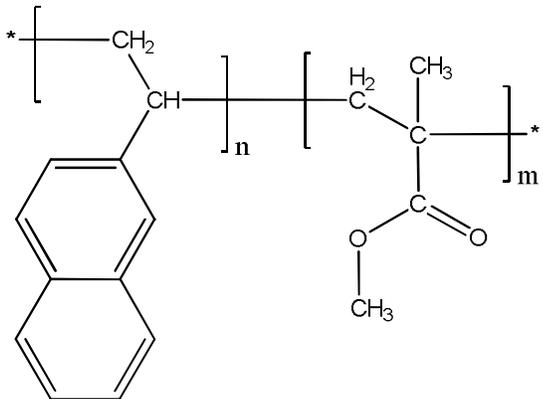


Sample Name:

Poly(2-vinyl naphthalene-b-methyl methacrylate)

Sample #: P3232A-2VNMMA

Structure:



Composition:

Mn x 10 <sup>3</sup> VN-b-MMA	PDI
100.0-b-289.0	1.3

Synthesis Procedure:

The details are given in the following paper:

Faquan Zeng, Mu Yang, Jianxin Zhang, Sunil K. Varshney. *Synthesis and characterization of block copolymers from 2-vinylnaphthalene by anionic polymerization*, Journal of Polymer Science Part A: Polymer Chemistry, 40, 24, 4387-4397 2002.

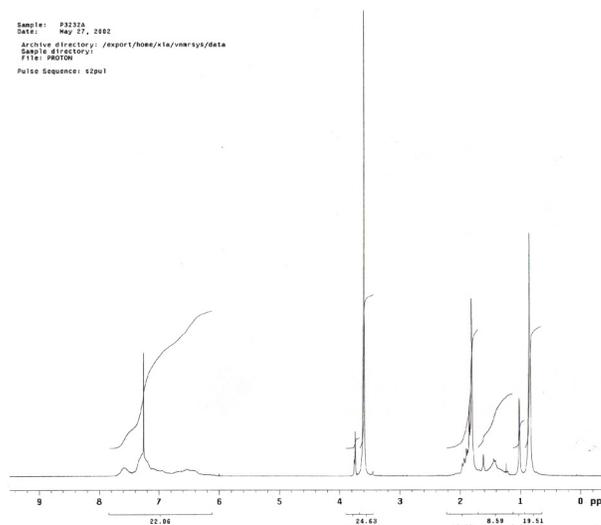
Characterization:

An aliquot of the anionic poly 2-vinyl naphthalene block was terminated before addition of D<sub>3</sub> and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from <sup>1</sup>H-NMR spectroscopy.

Solubility:

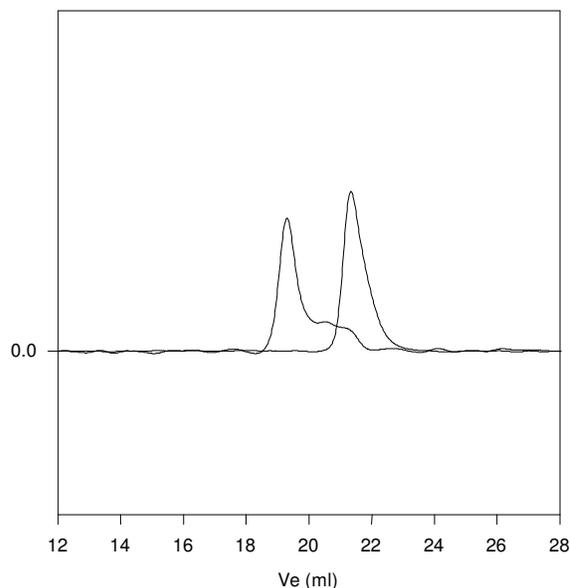
Poly(2-vinyl naphthalene-b-dimethylsiloxane) block copolymer is soluble in toluene, cyclohexane, hexane, THF, CHCl<sub>3</sub>. The polymer can be precipitated from ethanol, methanol, water.

**<sup>1</sup>H-NMR Spectrum of the block copolymer:**



**SEC elugram of the block copolymer:**

**P3232A-2VNMMA**



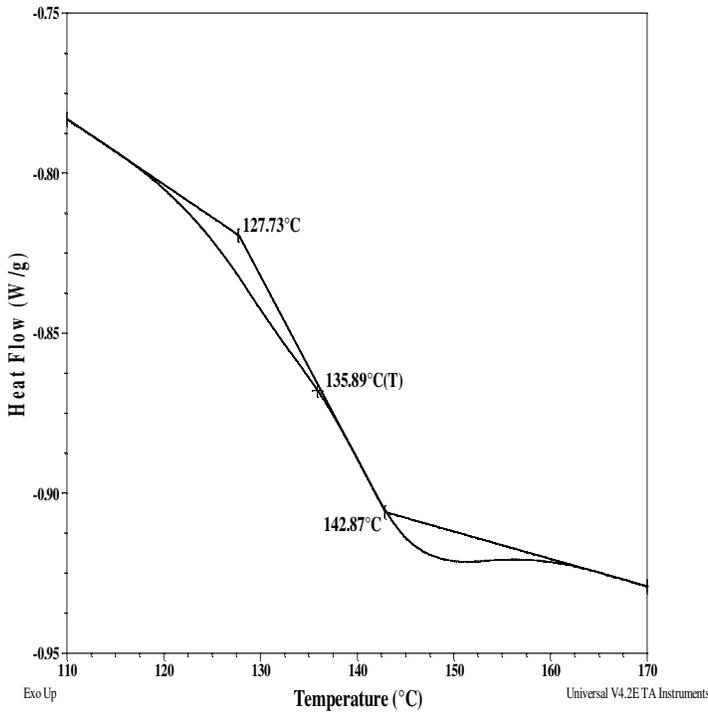
Size exclusion chromatography of  
poly(2Vinyl naphthalene-b-methylmethacrylate)  
Molecular weight determined on line light scattering detector  
Viscotek

- Poly(2 vinyl naphthalene), M<sub>n</sub>=100000, M<sub>w</sub>=108000, PI=1.08
- Block Copolymer P2VN(100000)-b-PMMA(289,000), PI=1.3  
Containing about < 10% homopoly 2 vinyl naphthalene

### Thermal analysis of sample P3232a-2VNMMA

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 ( $T_g$ ).

### Thermogram of 2VN block:



### Glass transition temperature at a glance

$T_g$ for 2VN block	136°C
$T_g$ for MMA block	Not distinct

### $T_g$ of homopolymer 2VN as function of $M_n$

2-vinyl naphthalene		
Sample #	$M_n \times 10^3$	$T_g$ (°C)
P3376	18.4	136
P587	30	137
P571	54	143
P3302B	195	140

### $T_g$ of homopolymer MMA as function of $M_n$

Methyl methacrylate		
Sample #	$M_n \times 10^3$	$T_g$ (°C)
P2714	21.2	116
P2863	60	124
P4300	85	123
P4655	450	118