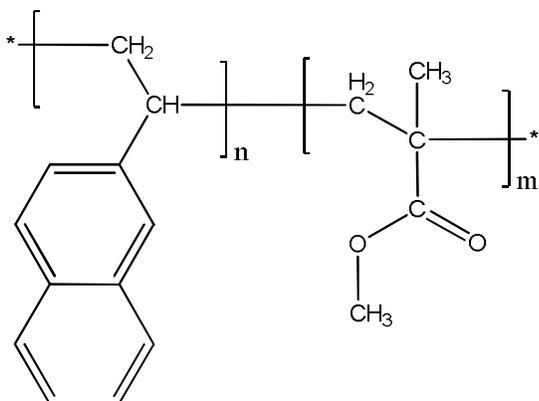


Sample Name:

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

Sample # P3287-VNMMA

Structure:**Composition:**

Mn x 10 ³ VN-b-MMA	PDI
250.0-b-235.0	1.30

Synthesis Procedure:

The details are given in the following paper:

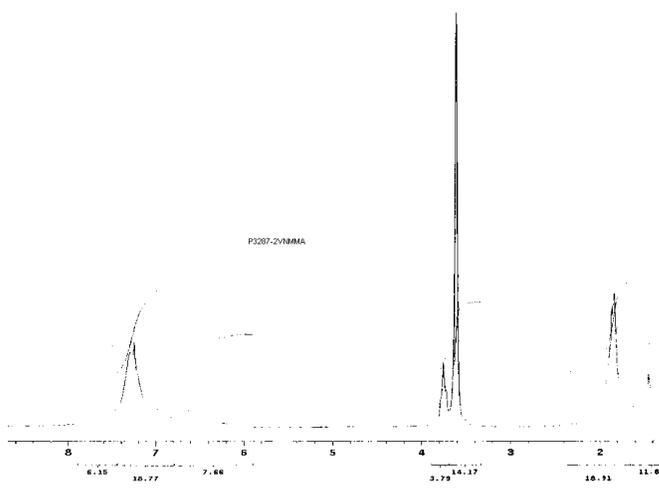
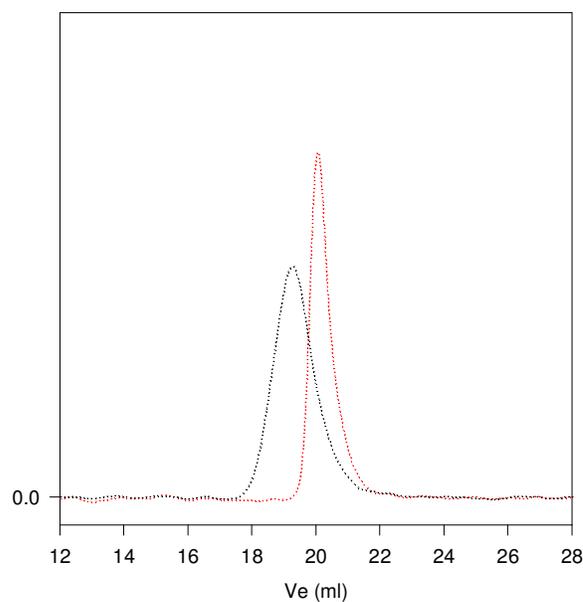
Faquan Zeng, Mu Yang, Jianxin Zhang, Sunil K. Varshney. *Synthesis and characterization of block copolymers from 2-vinylnaphthalene by anionic polymerization*, Journal of Polymer Science Part A: Polymer Chemistry, 40, 24, 4387-4397 2002.

Characterization:

An aliquot of the anionic poly 2-vinyl naphthalene block was terminated before addition of D3 and analyzed by size exclusion chromatography (SEC) to obtain the molecular weight and polydispersity index (PDI). The final block copolymer composition was calculated from ¹H-NMR spectroscopy.

Solubility:

Poly(2-vinyl naphthalene-b-dimethylsiloxane) block copolymer is soluble in toluene, cyclohexane, hexane, THF, CHCl₃. The polymer can be precipitated from ethanol, methanol, water.

¹H-NMR Spectrum of the block copolymer:**SEC of the block copolymer:****P3287-2VNMMA**

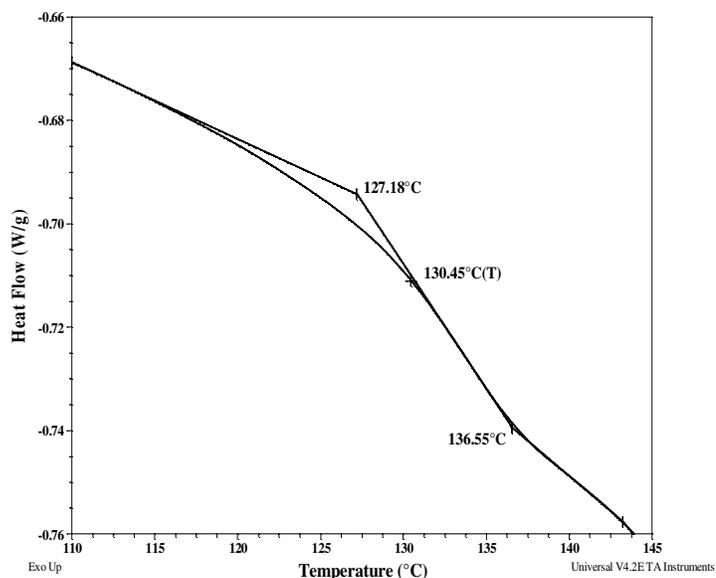
Size exclusion chromatography of poly(2Vinyl naphthalene-b-methylmethacrylate)
Molecular weight determined on line light scattering detector
Viscotek

- Poly(2 vinyl naphthalene), M_n=250000, M_w=280000, PI=1.12
- Block Copolymer P2VN(250000)-b-PMMA(235000), PI= 1.30
Composition for ¹H-NMR. dn/dc: 0.174 in THF at 30°C.
viscosity: 1.361 dl/g

Thermal analysis of sample P3287-2VNMMA

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 MMA block:



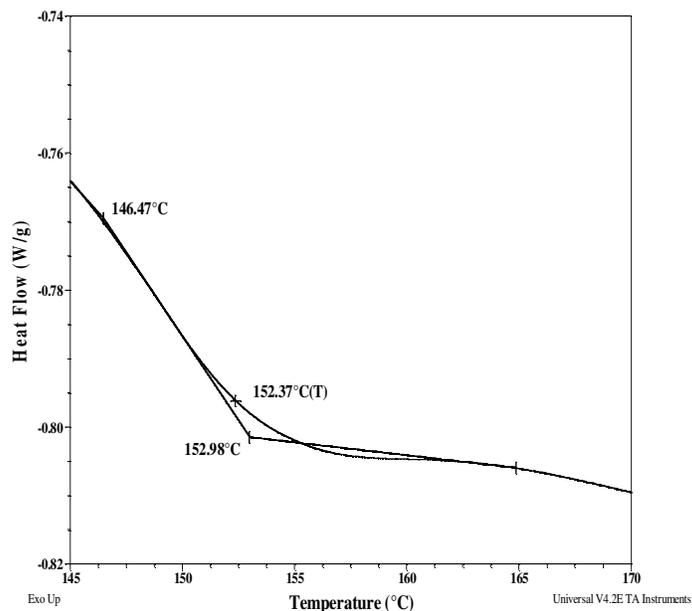
T_g of homopolymer MMA as function of M_n

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

Glass transition temperature at a glance

T_g for PS block	130°C
T_g for MMA block	152°C

Thermogram of 2VN block:



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