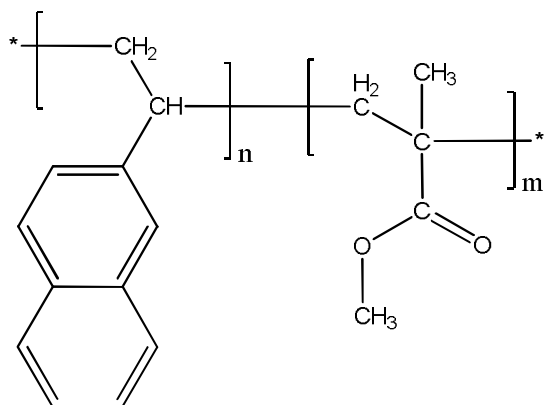


**Sample Name:** Poly(2-vinyl naphthalene-*b*-methyl methacrylate)

**Sample #** P3323-2VNMMMA

**Structure:**



**Composition:**

|                                  |      |
|----------------------------------|------|
| Mn x 10 <sup>3</sup><br>VN-b-MMA | PDI  |
| 18.6-b-18.5                      | 1.12 |

**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.

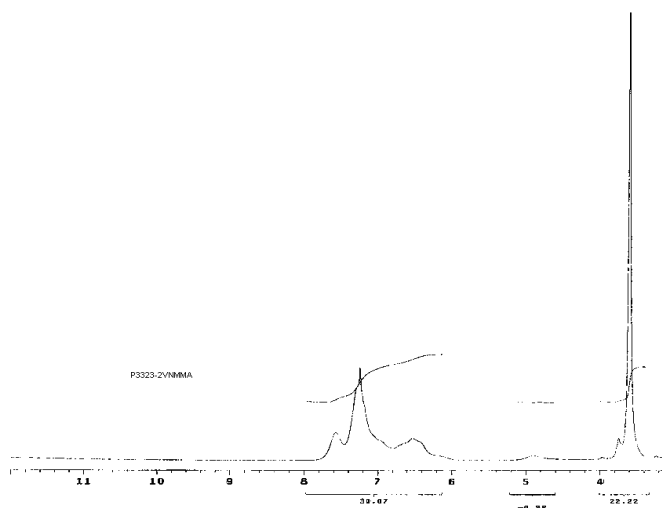
**Characterization:**

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 <sup>1</sup>H-NMR spectroscopy.

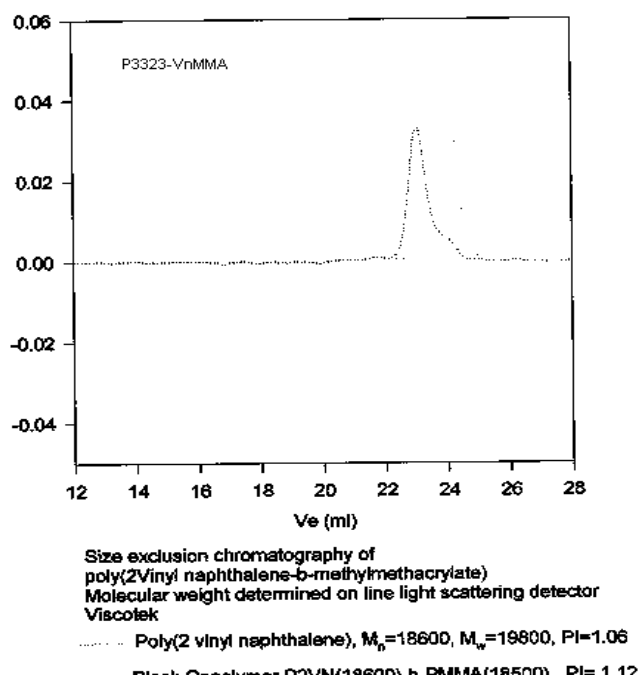
**Solubility:**

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:**



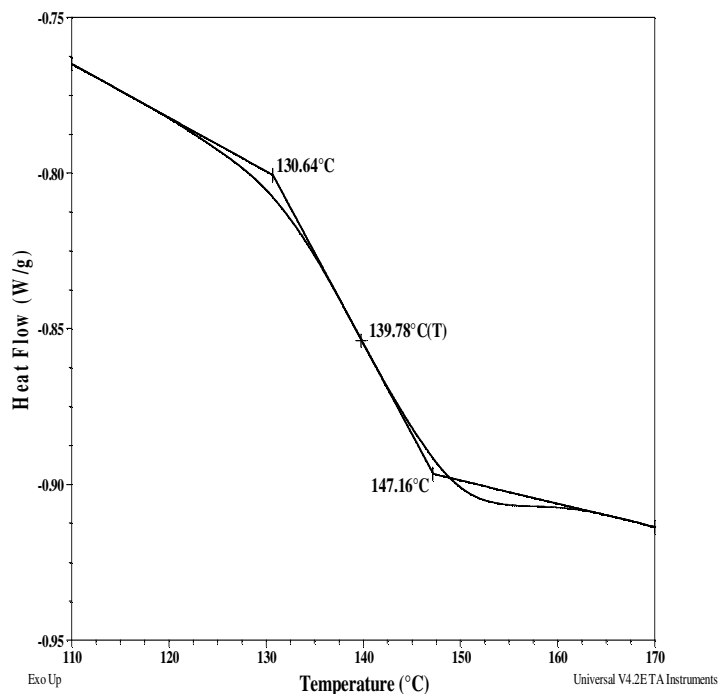
**SEC of the block copolymer:**



## Thermal analysis of sample P3323-2VNMMA

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 | 140°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        |