

Sample Name: Poly(2-vinyl naphthalene-b-dimethylsiloxane)

Sample # P3307-2VNDMS

Composition:

Mn x 10 ³ VN-b-DMS	PDI
134.8-b-20.0	1.16

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.

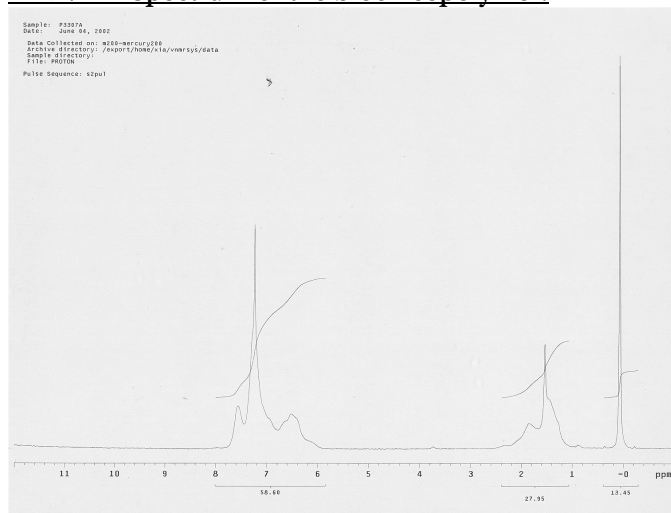
Characterization:

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:

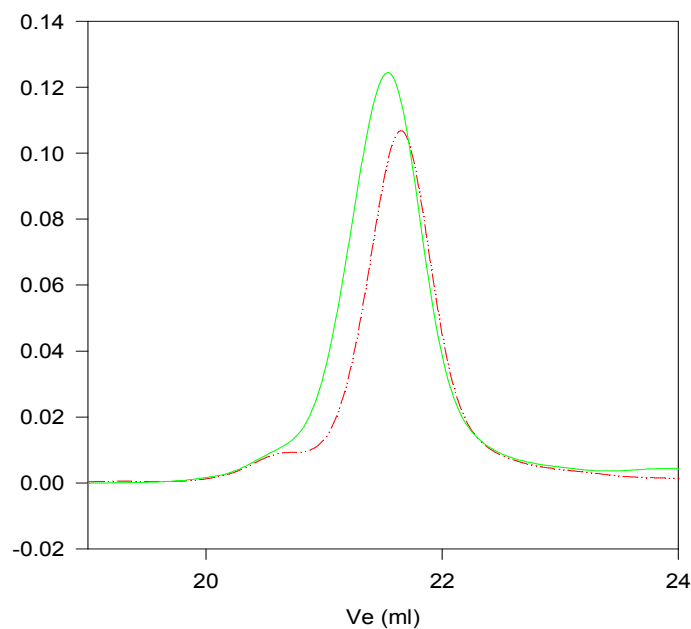
Poly(2-vinyl naphthalene-b-dimethylsiloxane) block copolymer is soluble in toluene, cyclohexane, hexane, THF, CHCl₃. The polymer can be precipitated from ethanol, methanol, water.

¹H-NMR Spectrum of the block copolymer:



SEC of the block copolymer:

P3307-2VNDMS



SEC profile of the diblock copolymer:

- Poly2-vinyl naphthalene, $M_n=134800$, $M_w=157800$, $PI=1.17$
- Triblock Copolymer P2VN(134800)-DMS(20000), $PI=1.16$

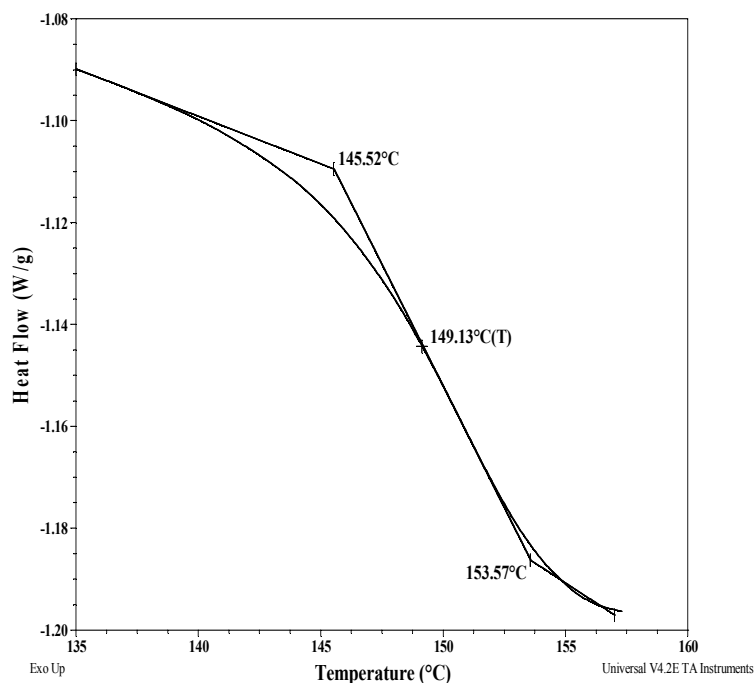
Thermal analysis of sample P3307-2VNDMS

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).

Thermal analysis results at a glance

Sample	T_m (°C)	T_c (°C)	T_g (°C)
P2VN	-	-	149
PDMS	-42	-91 (literature)	-123 (literature value)

Thermogram of P2VN block:



Melting and crystallization curve for the sample

The melting temperature (T_m) was taken as the maximum of the endothermic peak where as the crystallization temperature (T_c) was considered as the minimum of the exothermic peak.

Melting curve for PDMS block

