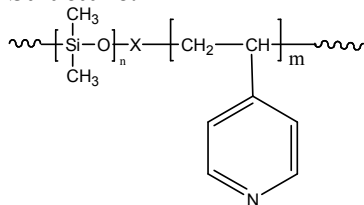


Poly(4-vinyl pyridine-b-dimethylsiloxane)

Structure:



$M_n \times 10^3$ 4VP-b-DMS	Mw/Mn
62.5-b-8.0	1.32

Poly (4-vinyl pyridine-*b*-dimethylsiloxane) was synthesized by RAFT Process.

Polymers were analyzed by size exclusion chromatography (SEC) to obtain the polydispersity index (PDI). The block copolymer composition was then calculated from ^1H -NMR spectroscopy by comparing the peak area of the 4-vinyl pyridine proton at about 8.2 ppm with the dimethyl siloxane protons at 0.08 ppm. Copolymer PDI is determined by SEC.

Poly(4-vinyl pyridine-*b*-dimethyl siloxane) is soluble in THF, CHCl₃ and toluene.

Chemical structure of 2-(2-oxo-2-methyl-1,3-dithiolan-5-yl)undecanoic acid (OR421-F1) is shown above the ^1H NMR spectrum. The structure is $\text{CH}_3(\text{CH}_2)_{10}\text{CH}_2\text{C}(=\text{S})\text{S}-\text{C}(\text{S})(\text{CH}_3)_2\text{COOH}$.

The ^1H NMR spectrum (CDCl₃) shows the following peaks (ppm):

- 0.86 (triplet, CH_3 of the undecanoate chain)
- 1.19-1.32 (multiplet, CH_2 of the undecanoate chain)
- 1.36 (multiplet, CH_2 adjacent to the thioether)
- 1.64 (multiplet, CH_2 adjacent to the thioether)
- 3.25 (multiplet, CH_2 adjacent to the thioether)
- 1.68 (singlet, CH_3 of the 1,3-dithiolane ring)

The spectrum is labeled OR421-F1.

[illegible]

Chemical structure of P40472-DMS-RAFT is shown above the spectrum. The structure consists of a polydimethylsiloxane (PDMS) backbone with a methylphenyl group and a long alkyl chain terminated with a RAFT group.

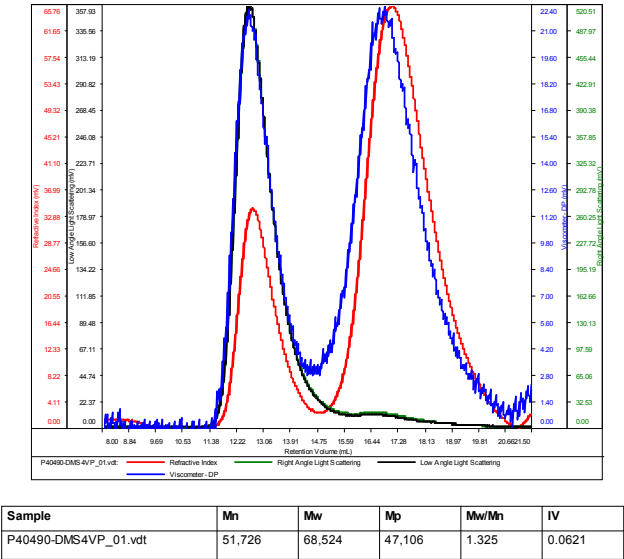
¹H NMR spectrum (CDCl₃) of P40472-DMS-RAFT. The spectrum shows peaks at 4.24, 3.62, 3.13, 1.70, and 0.88 ppm. The x-axis ranges from 4.6 to -1.0 ppm. Integration values are provided below the peaks: 1.87, 6.52, 8.73, 3.96, and 405.00.

P40490-DMS4VP

Chemical shift (ppm): 11.47, 7.0, 6.87, 3.8, 2.0, 1.8, 0.0

SEC elugram of the Polymer:
P40490-4VPDMS (L.M.W fractions-Micellization)

Conc	9.6399
dn/dc	0.1000
Solvent	DMF w 0.023M LiBr
Flow Rate	0.7000
Method	PS80k-March2017-0002.vcm



Sample	Mn	Mw	Mp	Mw/Mn	IV
P40490-DMS4VP_01.vdt	51,726	68,524	47,106	1.325	0.0621

Note:GPC carried out in DMF at 50°C . GPC profile shows micellization since 4VP block is insoluble in DMF. From the HNMR the compositions and its molecular weights determined. GPC profile only indicates Mw/Mn of the polymer

FTIR: The Composition of the polymer was also checked by FTIR.

