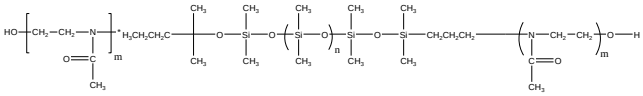
Sample Name:

Poly(2-methyloxazoline-b-dimethylsiloxane-b-2-methyloxazoline) Triblock Copolymer

Sample #: **P9550-MOXZDMSMOXZ**

Structure:



Composition:

Mn x 10^3	PDI
0.2-b-10.0-b-0.2	1.2

The composition was;

(15) methyloxazoline-b-(115) PDMS-b-(15) methyloxazoline

Synthesis Procedure:

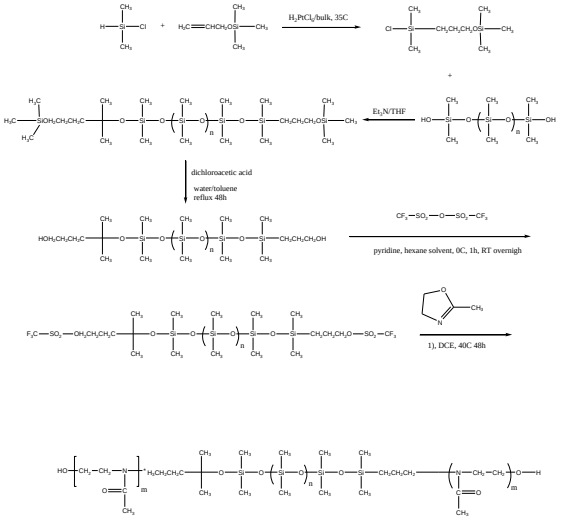
The α−ω dihydroxy terminated Poly(2-methyloxazoline-b-dimethylsiloxane-b-2-methyloxazoline) triblock copolymer was prepared by combination of anionic living polymerization of hexamethylcyclotrisiloxane (D3) and cationic polymerization of 2-methyl oxazoline, using difunctional initiator. Polymer was recovered in cold acetone, wash couple of times with cold acetone to remove the un reacted monomer and other side products.

Characterization:

Centeral Block: Size exclusion chromatography (SEC): Varian liquid chromatograph equipped with UV and refractive detector. SEC columns from Supelco were used with THF and for the block copolymer in DMF as the eluent. The columns were calibrated with monodisperse poly(dimethyl siloxane). The molecular weights and the polydispersity indice were calculated.

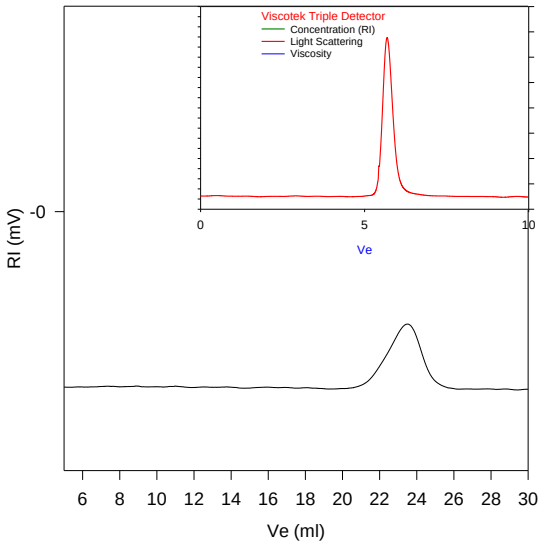
Side Block: The chemical composition was extracted from proton NMR, which was recorded from Varian 500MHz instrument using $CDCl_3$ as solvent. The molecular weight of side block was calculated based on the molecular weight of centeral block and the chemical composition. The polydispersity index of block copolymer was obtained by SEC as described above.

The reaction of polymerization can be illustrated as follows:



SEC of Sample:

P9550-MeOXZDMSMeOXZ



Size Exclusion Chromatography of polymer:
Precursor in THF at 35 oC

—— M_n =10,000, M_w = 12000, M_w/M_n = 1.2

Block copolymer can not be eluted in THF

Block copolymer analysis in DMF at 45 oC (see insert Box):

Mn: 200-b-10000-b-200 Mw/Mn 1.2

HNMR of the Polymer: