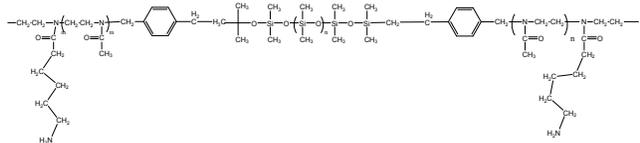


Sample Name:

Amino end functionalized Poly(2-methyloxazoline-b-dimethylsiloxane-b-2-methyloxazoline) Triblock Copolymer

Sample #: **P10390X-NH2MOXZDMSMOXZNH2**

Structure:



Composition:

$M_n \times 10^3$	PDI
1.0-b-4.0-b-1.0	1.6

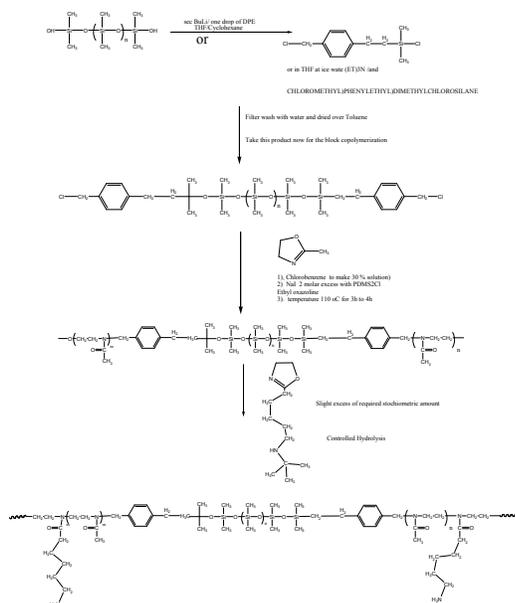
Synthesis Procedure:

The α,ω -diamino 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 followed by termination of syochiometric amount of 2-(N-Boc-aminopentyl)-2-oxazoline. The BOC Amino terminated by hydrolysed selectively without destroying the poly dimethyl siloxane chain. Polymer was recovered in cold acetone, wash couple of times with cold acetone to remove the unreacted monomer and other side products.

Characterization: Central 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 indices 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 central block and the chemical composition. The polydispersity index of block copolymer was obtained by SEC as described above.

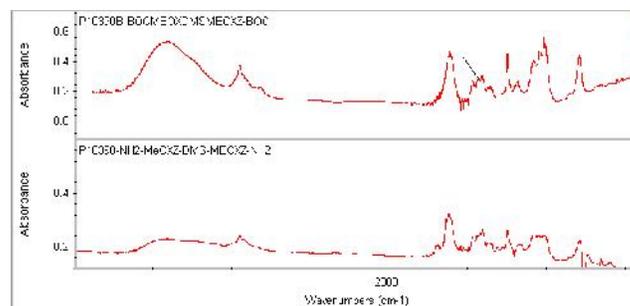
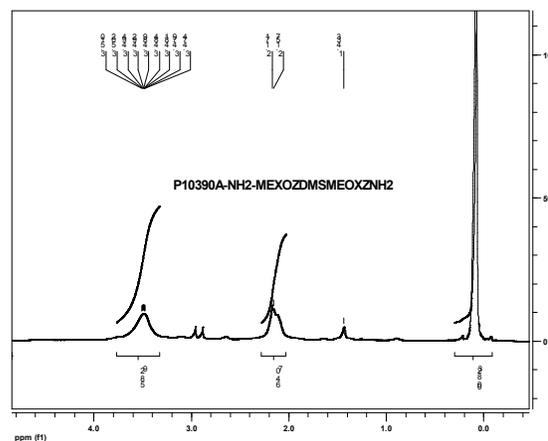
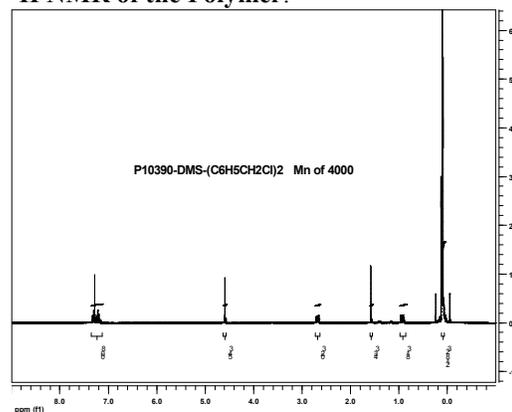
The reaction of polymerization can be illustrated as follows:



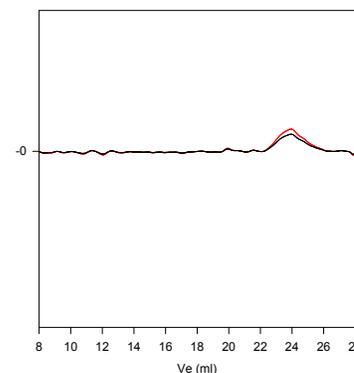
Deprotection of Amino BOC to free NH_2 group:

Because of the presence of PDMS block the deprotection of BOC-Amino can not be carried out in acidic conditions. PDMS block can be destroyed under acidic conditions. It was carried out under basic conditions using CS_2CO_3 /imidazole conditions and it was checked after deprotection by FT-IR and by SEC analysis illustrating no degradation of PDMS block.

1H NMR of the Polymer:



P10390X-BOC-MeOXZ-DMS-MeOXZ-BOC and after deprotection of Boc group



Size Exclusion Chromatography of Poly(dimethyl siloxane)
Triblock copolymer: $M_n=1000$ -b-4000-1000, $PI=1.4$