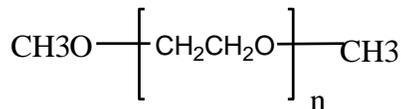


Sample Name: Poly(ethylene glycol) dimethyl ether

Sample #: P42808-EG2OCH3

Structure:

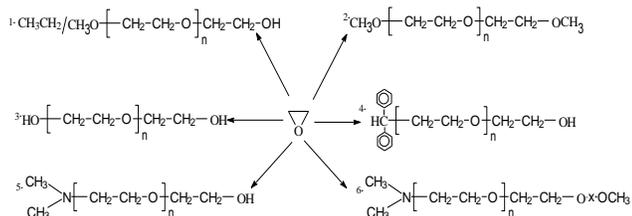


Composition:

Mn x 10 ³	PDI
0.35	1.08

Synthesis Procedure:

Poly (ethylene glycol) is obtained by living anionic polymerization and the reaction. Scheme of the polymerization is illustrated below:



	Initiator System	Resulting Polymer
1)	$\text{CH}_3\text{OCH}_2\text{CH}(\text{CH}_3)\text{OK}$	polyethylene glycol methyl ether
2)	$\text{CH}_3\text{OCH}_2\text{CH}(\text{CH}_3)\text{OK}$	α , ω -term. methyl ether polyethylene glycol
3)	$\text{KOCH}_2\text{CH}_2\text{OK}$	polyethylene glycol
4)	$\text{CH}(\text{C}_5\text{H}_6)_2\text{CK}$	polyethylene glycol diphenyl ether
5)	$(\text{CH}_3)_2\text{N}-\text{CH}_2\text{CH}_2\text{OK}$	methyl amino terminated PEG
6)	$(\text{CH}_3)_2\text{N}-\text{CH}_2\text{CH}_2\text{OK}$	α -methyl amino ω -methyl ether term. PEG

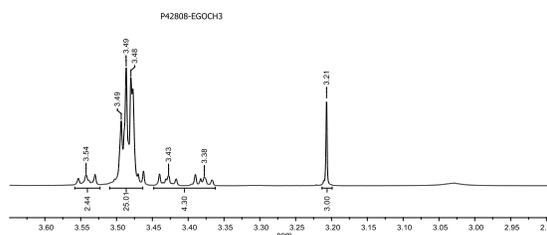
Characterization: The product was characterized by size exclusion chromatography (SEC) and ¹H-NMR data analysis.

Purification of the obtained polymer:

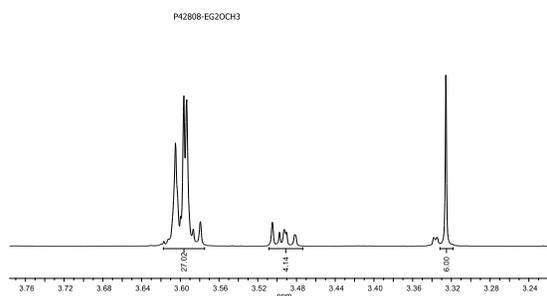
Purification of the obtained polymer was carried out rigorously as follows to ensure the removal of the catalyst side product:

1. Dissolved the polymer in de-ionized distilled water to remove the any insoluble organic catalyst side product.
2. Polymer extracted from water with dichloromethane.
3. Polymer solution in dichloromethane was dried over anhydrous sodium sulfate.
4. Solution filtered and than passed through a column packed with basic Al_2O_3 .
5. Solution concentrated on rota-evaporator
6. Solution precipitated in cold diethyl ether.
7. Dried under vacuum for 48h at 38 °C.

¹H-NMR spectrum of EG-OCH3 :



¹H-NMR spectrum of EG-2OCH3:



SEC elugram of Sample :

