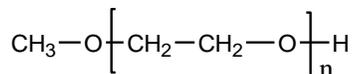


Sample Name:

**Poly (ethylene glycol) methyl ether**

Sample #: **P40617-EGOCH3OH**

Structure:



Composition:

$\text{Mn} \times 10^3$	PDI
12.0	1.05

**Synthesis Procedure:**

Poly (ethylene glycol) is obtained by living anionic polymerization reaction.

**Characterization:**

Polyethylene glycol was analyzed by  $^1\text{H}$  NMR and light scattering size exclusion chromatography (SEC) to obtain molecular weight and the polydispersity index (PDI) with DMF containing 0.023M LiBr as an eluent at 50°C.

**Purification of the obtained polymer:**

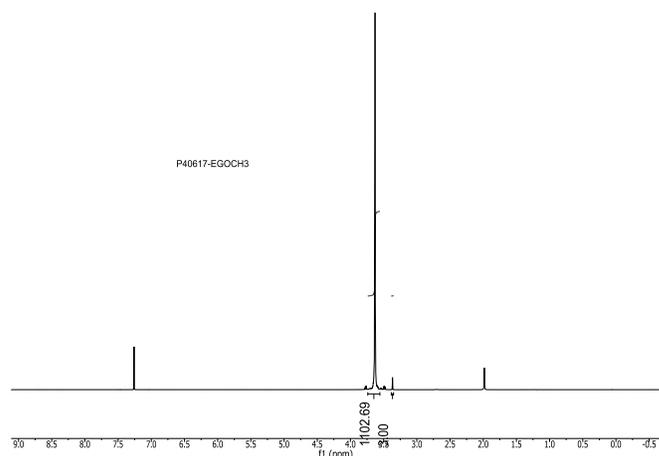
Purification of the obtained polymer was carried out rigorously as follows to ensure the removal of the catalyst side product:

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  $\text{Al}_2\text{O}_3$ .
5. Solution concentrated on rota-evaporator
6. Solution precipitated in cold diethyl ether.
7. Dried under vacuum for 48h at 38 oC.

**Solubility:**

Poly(ethyl glycol) is soluble in toluene, THF, water and  $\text{CHCl}_3$ . The polymer is insoluble in hexane, ether, cold isopropanol and ethanol.

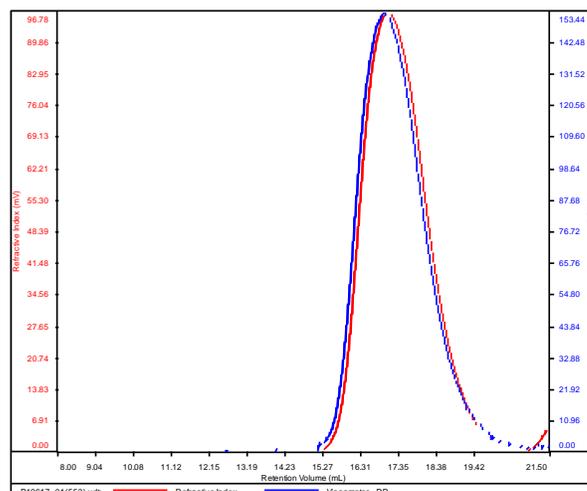
**$^1\text{H}$  NMR spectrum of the sample:**



**SEC of Sample of the polymer**

**P40617-EGOCH3**

Conc	33.3957
dn/dc	0.0440
Solvent	DMF w 0.023M LiBr
Flow Rate	0.7000
Method	PS80k-May2017-0000.vcm



Sample	Mn	Mw	Mp	Mw/Mn	IV
P40617_01(553).vdt	11,907	12,349	11,591	1.037	0.1066