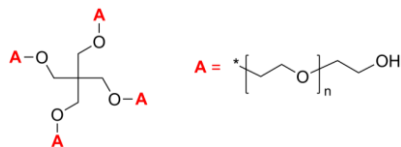


Sample Name: Poly(ethylene oxide),
hydroxy-terminated 4-arm star polymer /
Core: pentaerythritol

Sample #: P44303-4EOOH

Structure:

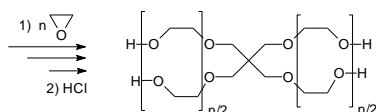
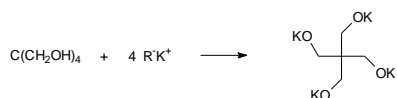


Composition:

Mn x 10 ³ (total)	PDI
12.0	1.09

Synthesis Procedure:

The polymer was prepared by anionic living polymerization of ethylene oxide using pentaerythritol potassium salt as the initiator. The scheme of the reaction is illustrated below:



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. The polymer solution in dichloromethane was dried over anhydrous sodium sulfate.
4. Solution filtered and then passed through a column packed with basic Al₂O₃.
5. Solution concentrated on rota-evaporator.
6. Solution precipitated in cold diethyl ether.
7. Dried under vacuum for 48h at 38 °C.

Solubility:

Polymer is soluble in toluene, THF, water and CHCl₃. The polymer is insoluble in hexane, ether, cold isopropanol, and ethanol.

HNMR of the polymer in DMSO:

