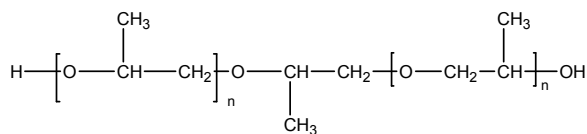


Sample Name:

α,ω - dihydroxy terminated-polypropylene oxide or Poly propylene glycol

Sample #: P8756-PO2OH

Structure:

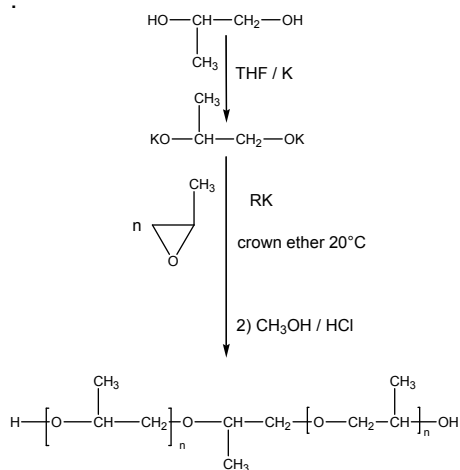


Composition:

Mn x 10 ³	PDI
3.5	1.08

Synthesis Procedure:

Polypropylene oxide is synthesized by anionic polymerization of propylene oxide as illustrated in the reaction scheme below



Characterization:

By Size exclusion chromatography (SEC): Varian liquid chromatograph equipped with UV and refractive detector. SEC columns from Supelco were used with THF containing 2 vol% (Et)₃N as the eluent. The molecular weights were determined using light scattering detector and viscosity detector. The molecular weights and the polydispersity indice were calculated.

Purification of the obtained polymer:

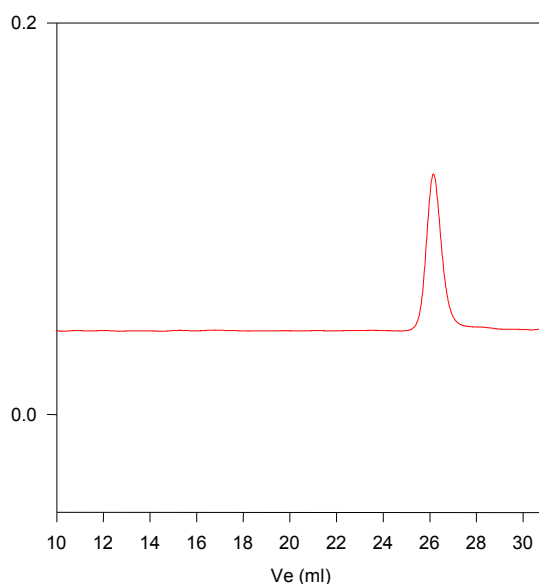
The reaction mixture is filtered to remove the precipitated KCl after which the solvent is removed under reduced pressure. The polymer is then redissolved in iso-octane, and recovered after keeping the solution at -10 oC.

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

1. Dissolved the polymer in dichloromethane and wash with water.
2. Polymer solution in dichloromethane was dried over anhydrous sodium sulfate.
3. Solution filtered and then passed through a column packed with basic Al₂O₃.
4. Solution concentrated on rota-evaporator
5. Solution precipitated in cold iso-octane at -20 oC. .
6. Dried under vacuum for 48h at 38 oC.

SEC of Homopolymer:

P8756-PO2OH



Size Exclusion Chromatography of Poly(propylene glycol):

M_n =3500, M_w =3780, PI=1.08