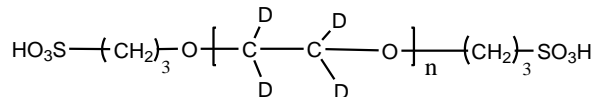


Sample Name:

α , ω -Disulfonic Acid Terminated deuterated Poly(ethylene glycol)

Sample #: **P2822-dPEO2SO3H**

Structure:

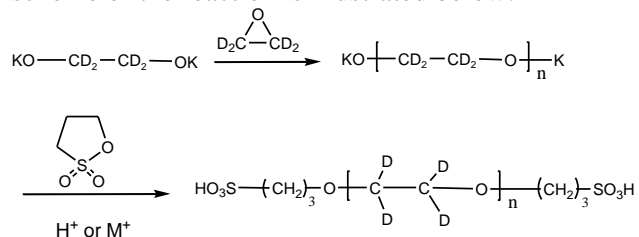


Composition:

$M_n \times 10^3$	PDI
68.5	1.04

Synthesis Procedure:

α , ω -disulfonic acid terminated deuterated poly(ethylene glycol) was synthesized by living anionic polymerization of deuterated ethylene oxide and termination with propansultone. Salts of the polymer are prepared by neutralization with acid solution. The scheme of the reaction is illustrated below:



Characterization:

The molecular weight and polydispersity index of this polymer were determined by size exclusion chromatography (SEC) using a Varian liquid chromatograph equipped with a UV and refractive index detector.

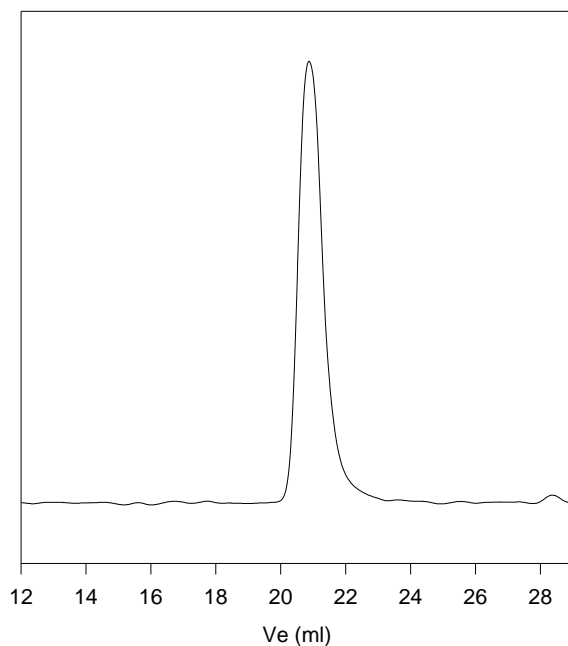
Functionality: The sulfonic acid functionality of the polymer was determined by two-phase titration with Hyamine[®] 1622 (Fluka) in water-chloroform using the methylene blue (Fluka) as indicator (*Ref: Quirk & Kim Macromolecules*, 1991, **24**, 4515-4522). The functionality of the polymer was obtained from titration.

Solubility:

Polymer is soluble in water, methanol and ethanol, THF, CHCl_3 . It is precipitated out from cold ethanol, isopropanol, hexane and ether.

SEC of the Sample:

P2822-dPEO 2So3H



Size Exclusion Chromatography of Polyethylene oxide (SEC in THF at 35 °C):

$M_w=68,500$, $M_n=71,500$ $PI=1.04$ with on line Viscotek light scattering detector:

Intrinsic viscosity: 0.791 dL/g Radius of gyration: 12.95 nm