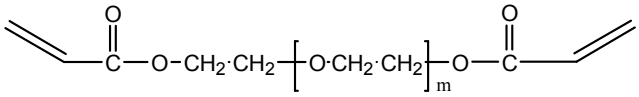
Sample Name:

α—ω diacrylate terminated Poly(ethylene glycol)

Sample #: **P4781-EG2Acrylate**

Structure:



Composition:

Mn x 10^3	PDI
3.4	1.10

Synthesis Procedure:
Synthesis Procedure:
Poly(ethylene glycol) is obtained by living anionic polymerization of ethylene oxide using di potassium salt of ethylene glycol. The obtained polymer was reacted with acryloyl chloride in an appropriate solvent to yield α—ω diacrylate terminated Poly(ethylene glycol).

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.

An aqueous GPC column from Supelco(G5000 PWXL) was also used with 0.5 M acetic acid and 0.8 M NaNO3 as the eluent. It was kept at a constant temperature of 50°C. The flow rate was 1.0 ml/min. The column was calibrated with monodisperse poly(ethylene oxide) standards. The molecular weights and the polydispersity index of polyethylene oxide were calculated by using a Visual Basic GPC software.

Functionality: Functionality of the polymer was determined by H NMR analysis or FT-IR spectroscopy.

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

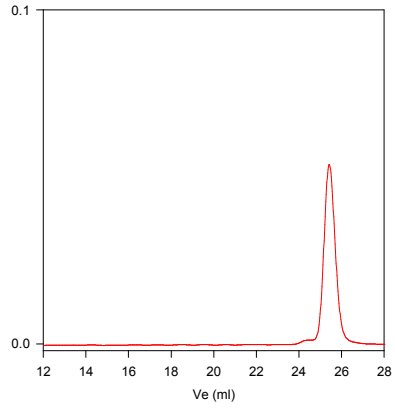
Purification of the obtained polymer:

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 oC.

SEC of Sample:

P-4781-PEG-2OH Precursor for acryate end functionalized PEG



Size exclusion chromatography of functionalized PEG:
M_n=3400 M_w=3750 PI=1.10
H NMR functionality 1.92 (over 95%)

HNMR of the product: