Polymerization of ethylene oxide under controlled monomer addition *via* a mass flow controller for tailor made polyethylene oxides

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Supporting Information

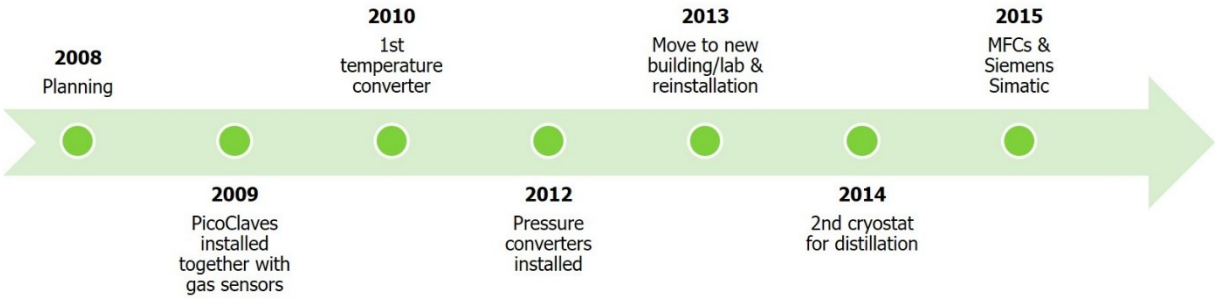

Fig. S1 Timeline of installations up to the present.

Table S1 Equipment used for the polymerization of ethylene oxide.

Autoclave system	**Sensors & converters**	**Control & automation**
2 x Autoclave 250 mL	4 x PT1000	S7-1200 CPU 1212C
2 x Pressure burette 250 mL (jacketed)	2 x Manometer	2x SM 1231 AI
Pressure burette 250 mL	2 x Temperature converter 9113B with display 4501	CM 1241 RS232
Pressure burette 100 mL	2 x Universal converter 9116B2 with display 4501	CM 1243-5 Profibus-DP
Compr. air motor with magnetic coupling	Power supply 9420	CSM 1277 Network switch
Valves, rupture discs, etc.		PM 1207 Power supply
2 x Cryostat for heating/cooling		mini CoriFLOW

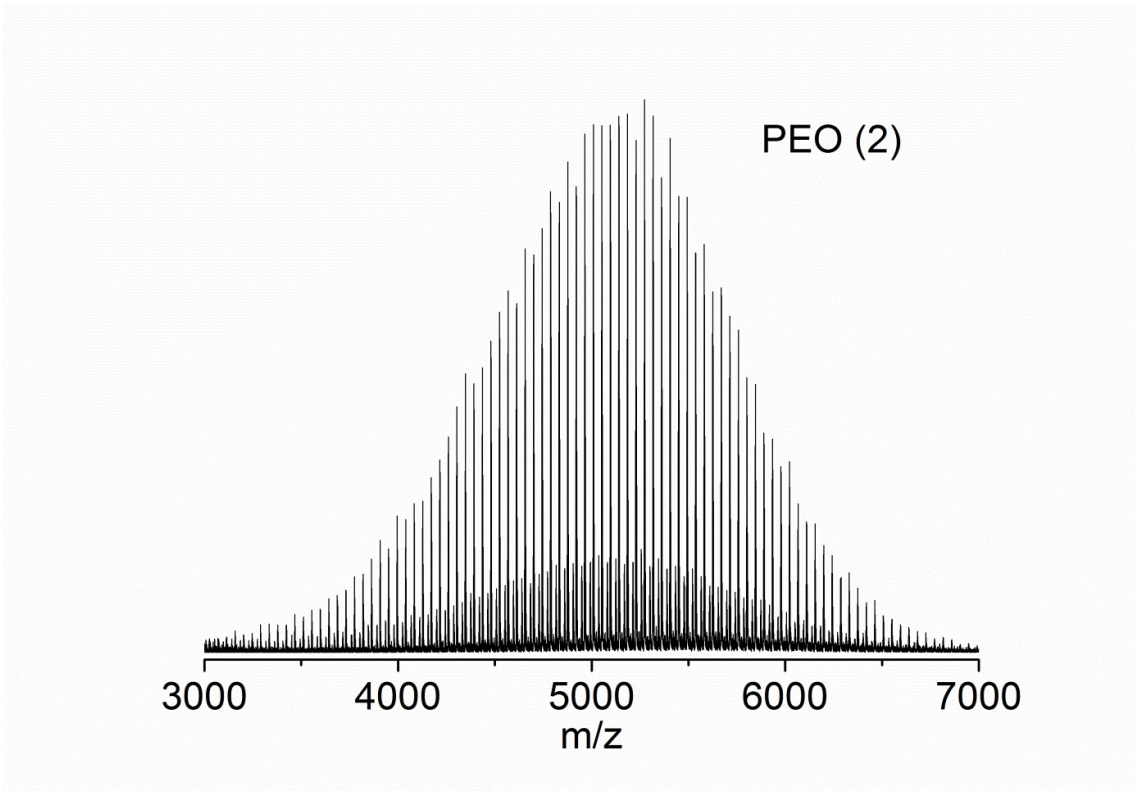

Fig. S2 MALDI-TOF-MS spectrum of PEO (2)

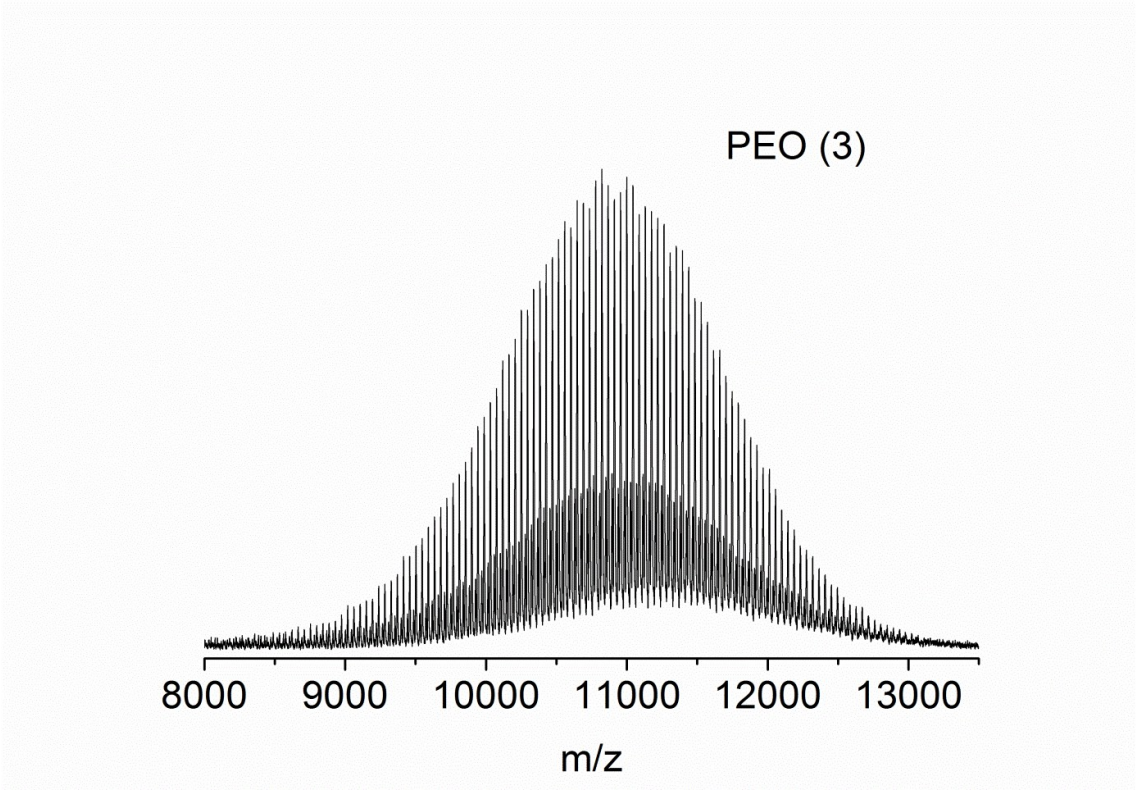

Fig. S3 MALDI-TOF-MS spectrum of PEO (3)

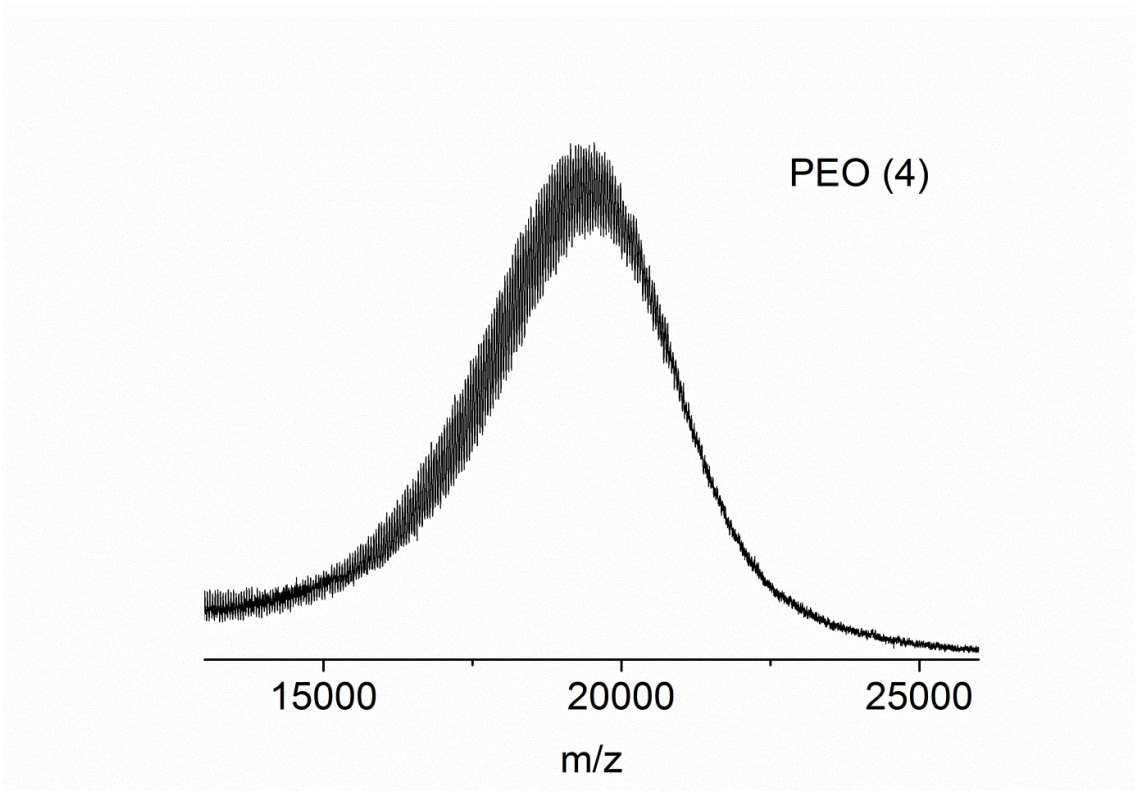

Fig. S4 MALDI-TOF-MS spectrum of PEO (4)

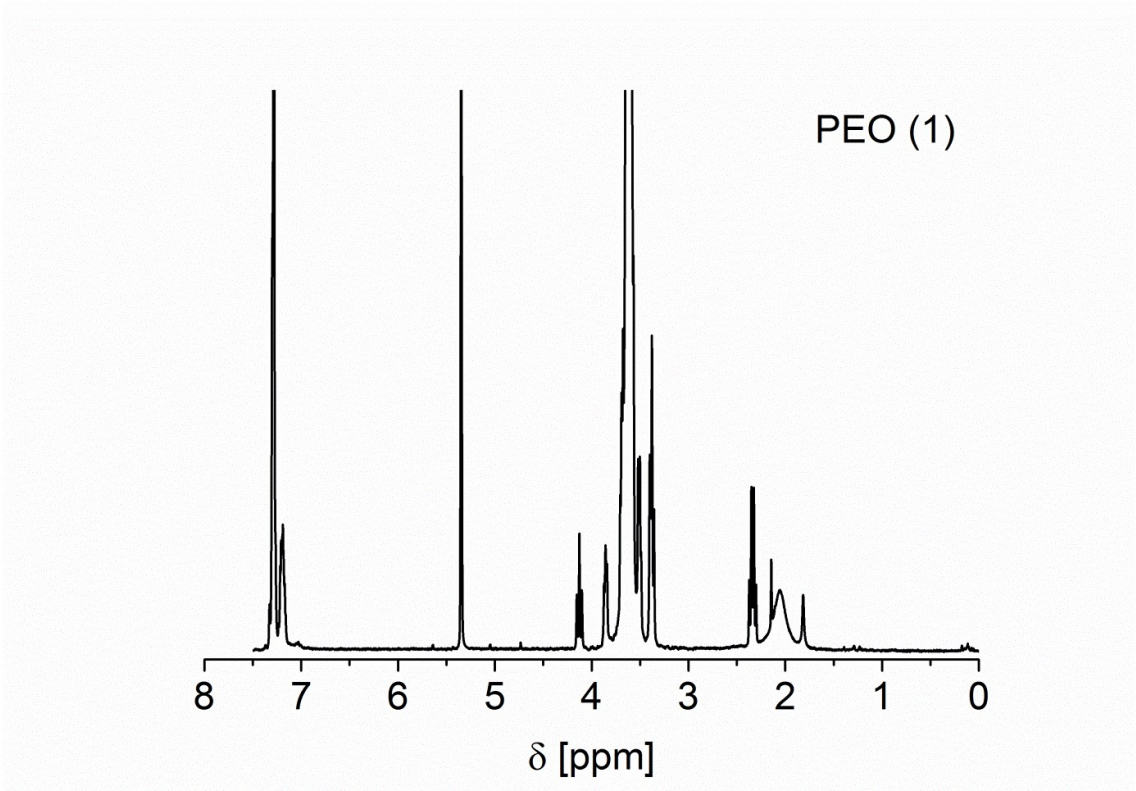

Fig. S5 ^{1}H NMR spectrum of PEO (1) (300 MHz, CD_2Cl_2).

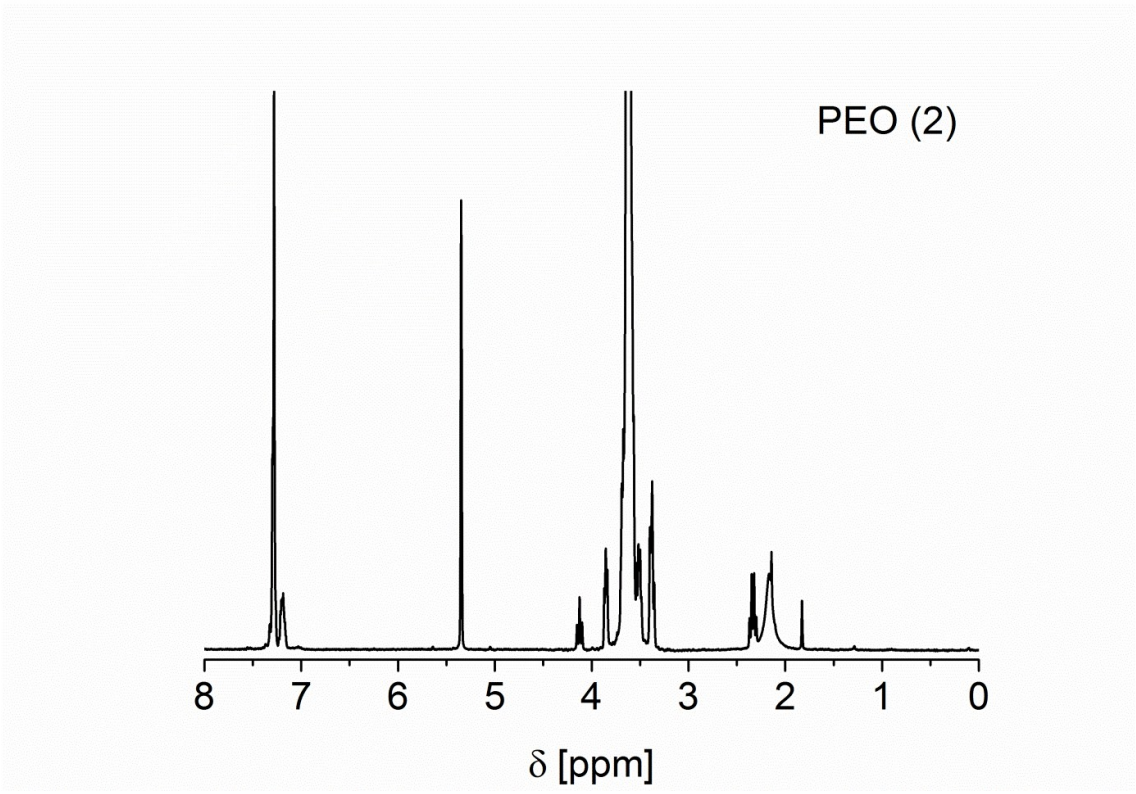

Fig. S6 ^{1}H NMR spectrum of PEO (2) (300 MHz, CD_2Cl_2).

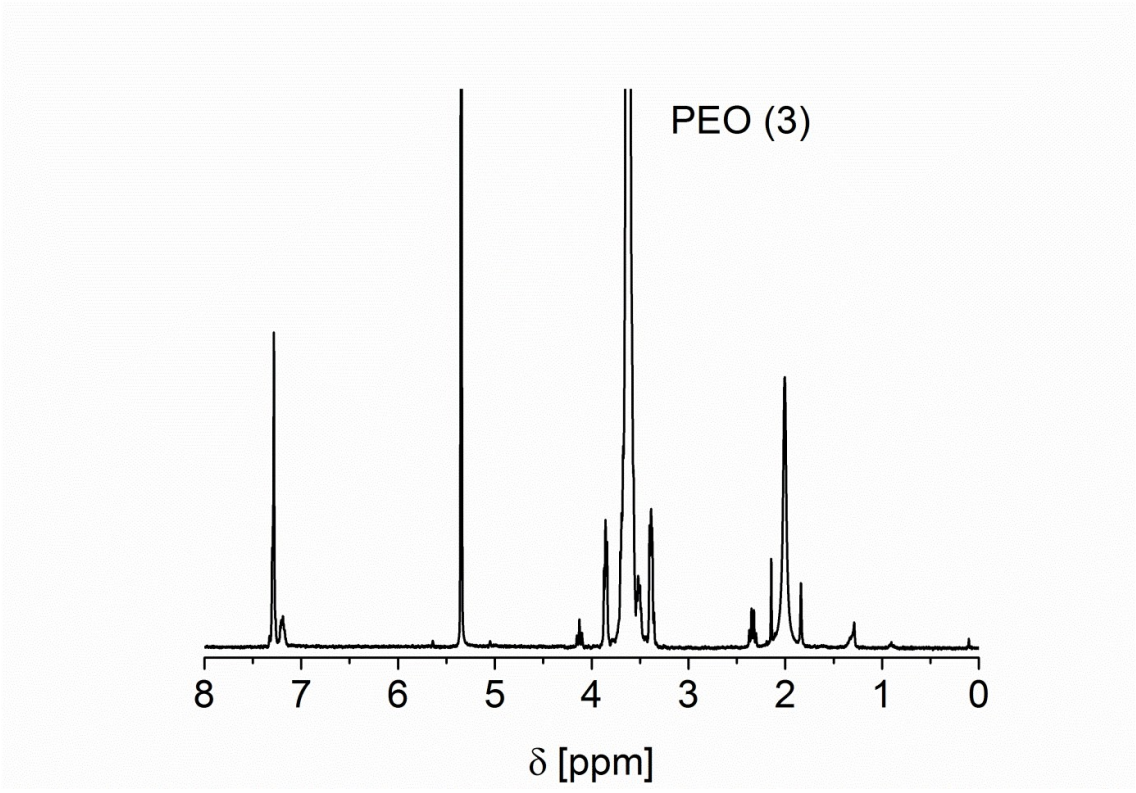

Fig. S7 ^{1}H NMR spectrum of PEO (3) (300 MHz, CD_2Cl_2).

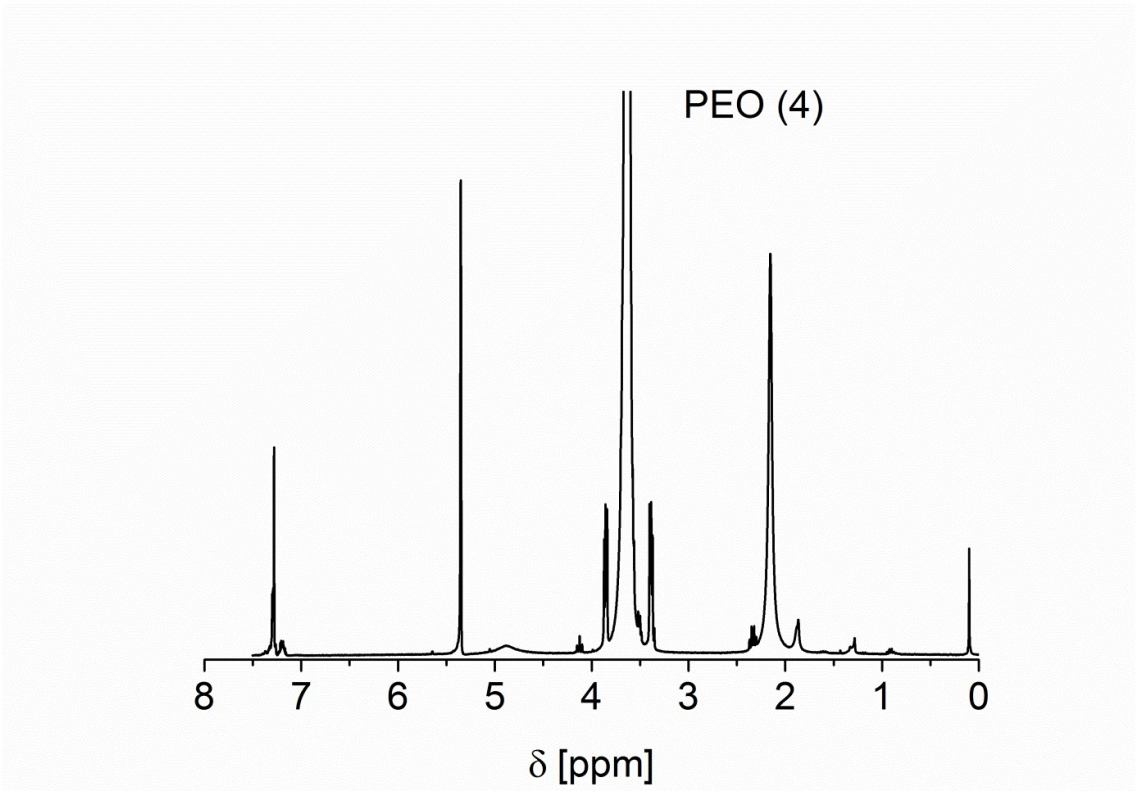

Fig. S8 ^{1}H NMR spectrum of PEO (4) (300 MHz, CD_2Cl_2).

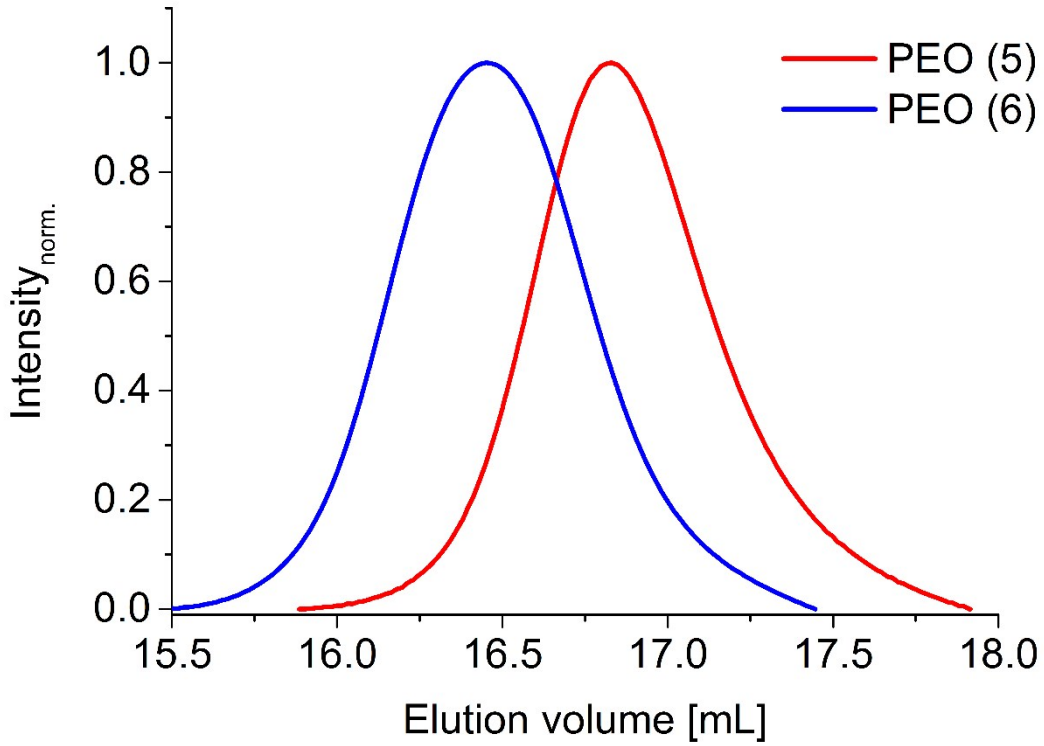

Fig. S9 SEC elution traces of the synthesized PEO polymers PEO (5) and PEO (6) (eluent DMAc + 0.21 % LiCl, polyethylene oxide standard).

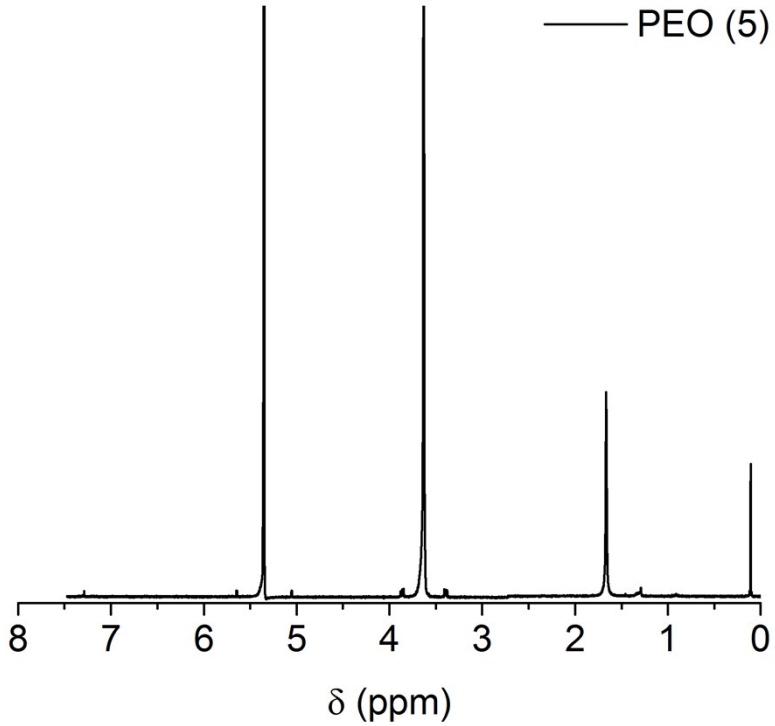

Fig. S10 ^{1}H NMR spectrum of PEO (5) (300 MHz, CD_2Cl_2).

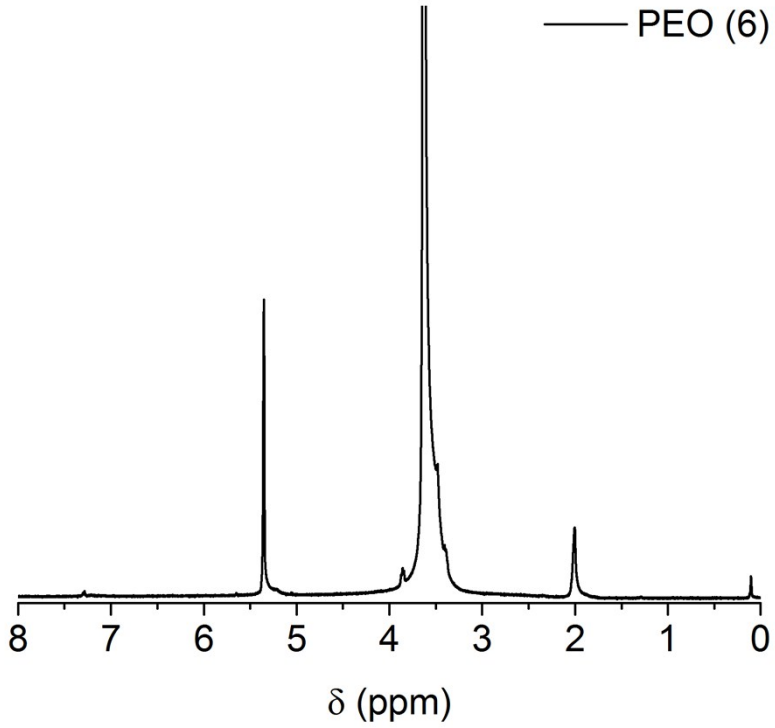

Fig. S11 ^{1}H NMR spectrum of PEO (6) (300 MHz, CD_2Cl_2).

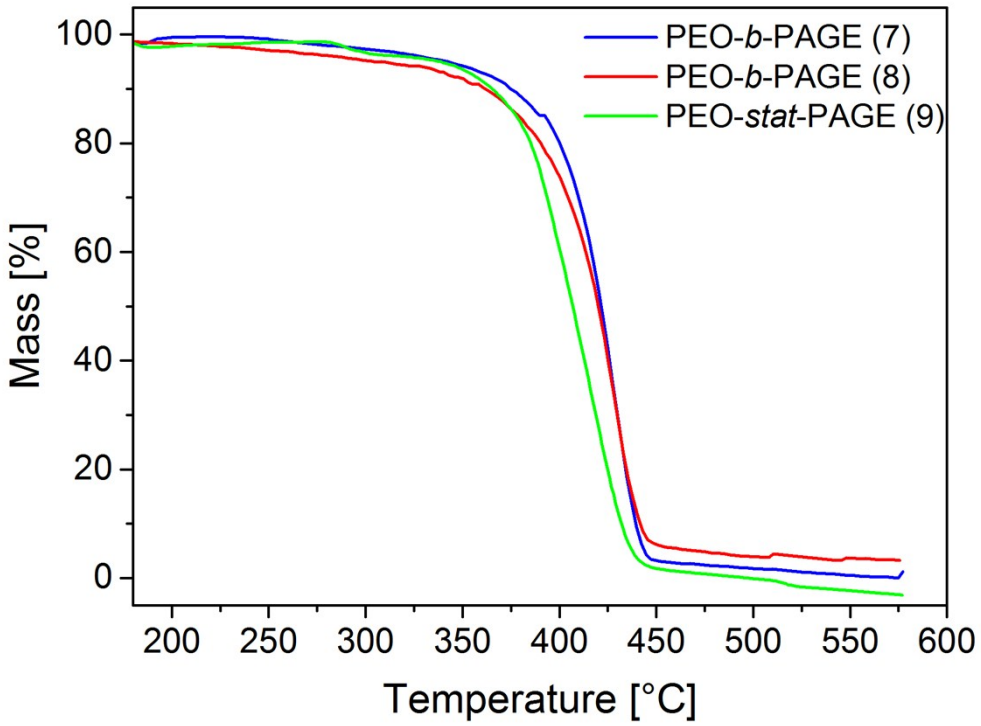

Fig. S12 TGA graphs of PEO-*b*-PAGE (7) and (8), PEO-*stat*-PAGE (9).

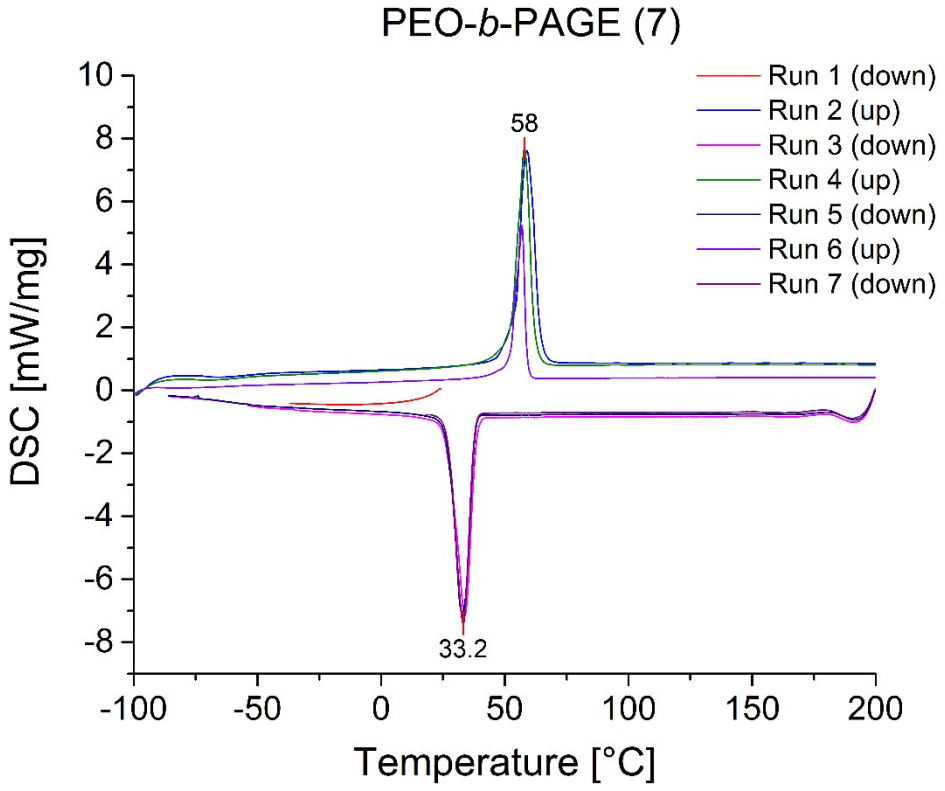

Fig. S13 DSC graphs of PEO-*b*-PAGE (7).

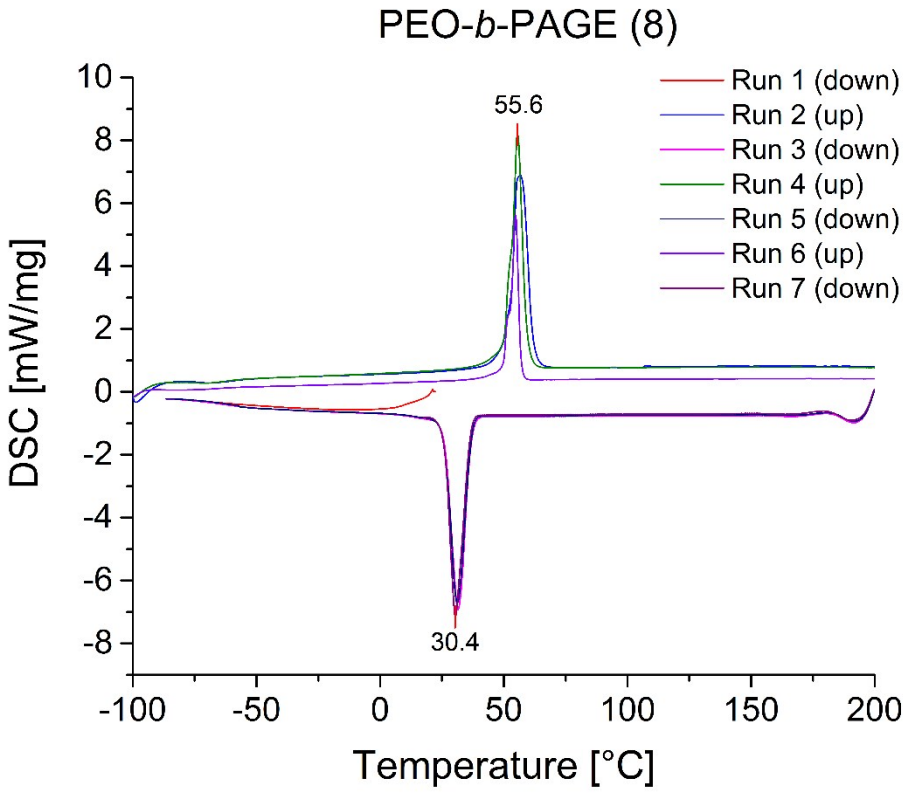

Fig. S14 DSC graphs of PEO-*b*-PAGE (8).

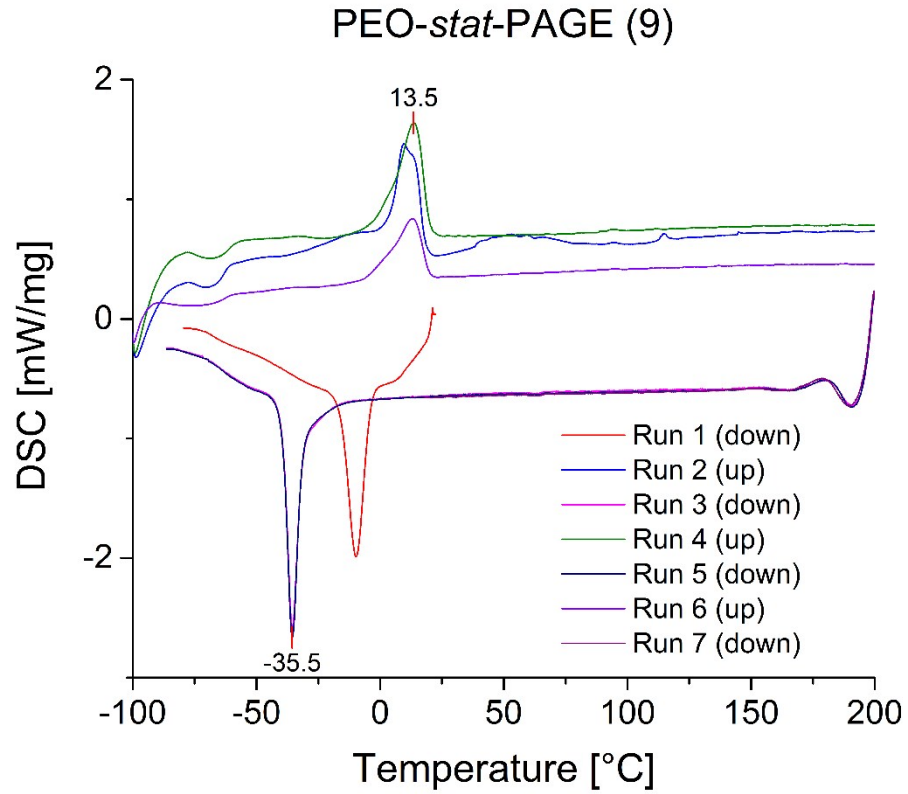

Fig. S15 DSC graphs of PEO-*stat*-PAGE (9).

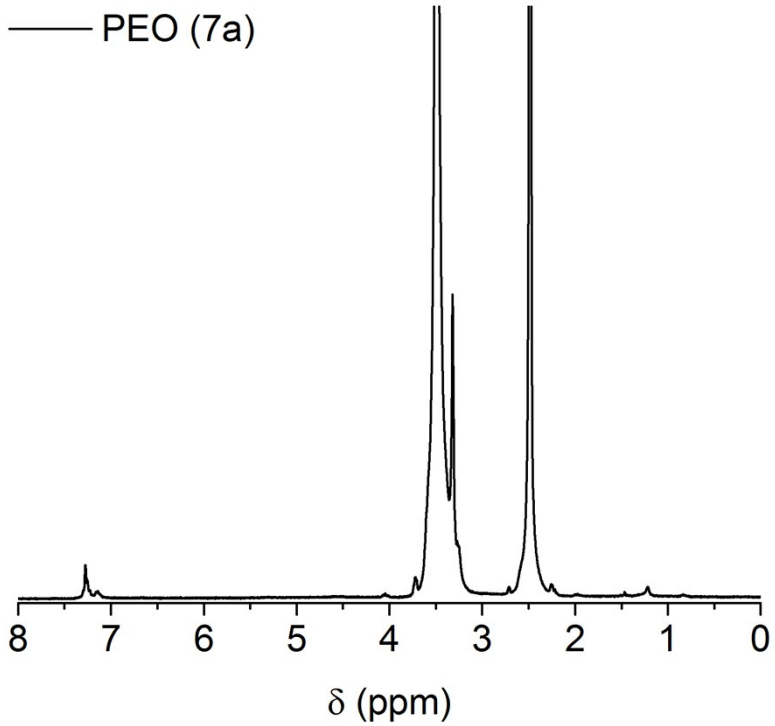

Fig. S16 ^{1}H NMR spectrum of PEO (7a) (300 MHz, DMSO-d_6).

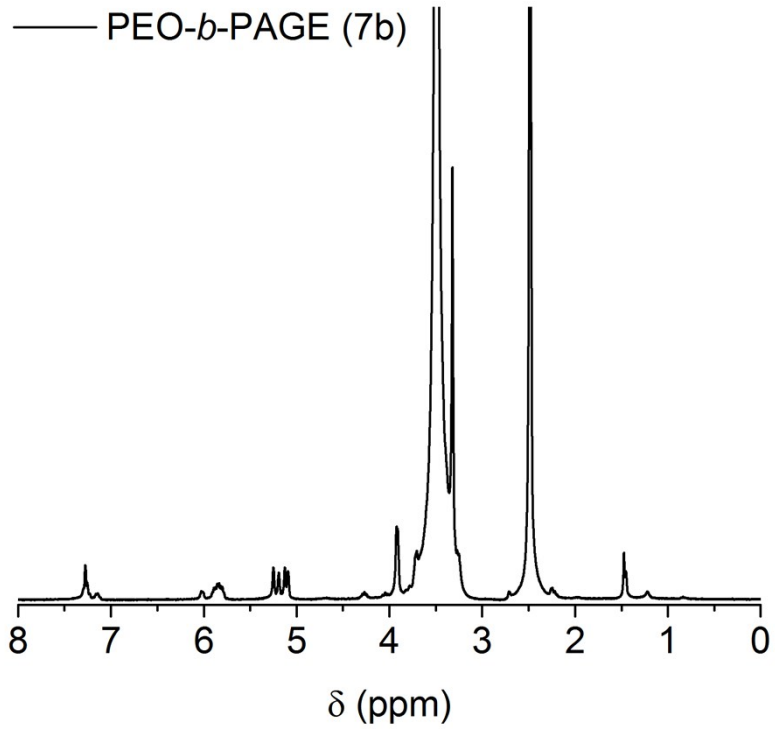

Fig. S17 ^{1}H NMR spectrum of PEO-*b*-PAGE (7b) (300 MHz, DMSO-d_6).

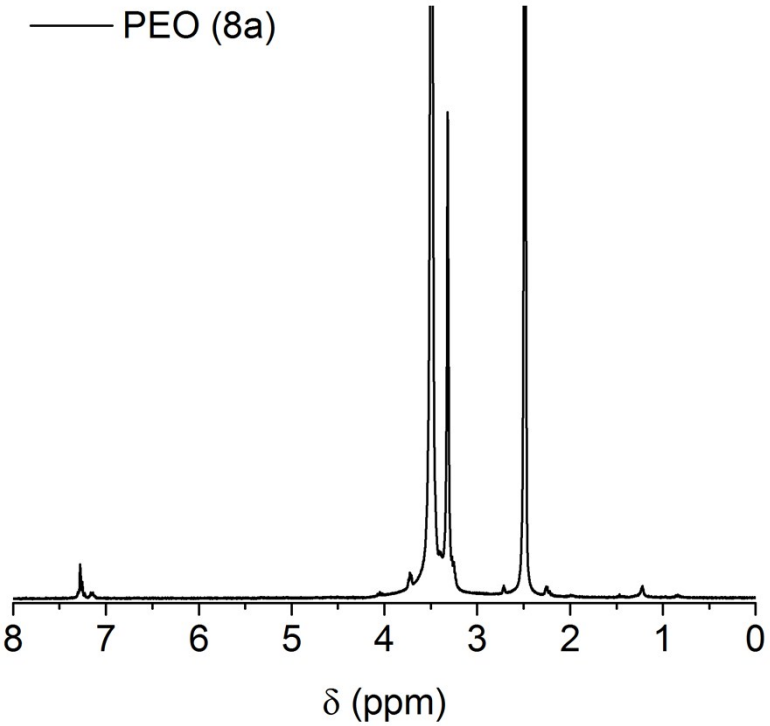

Fig. S18 ^{1}H NMR spectrum of PEO (8a) (300 MHz, DMSO-d_6).

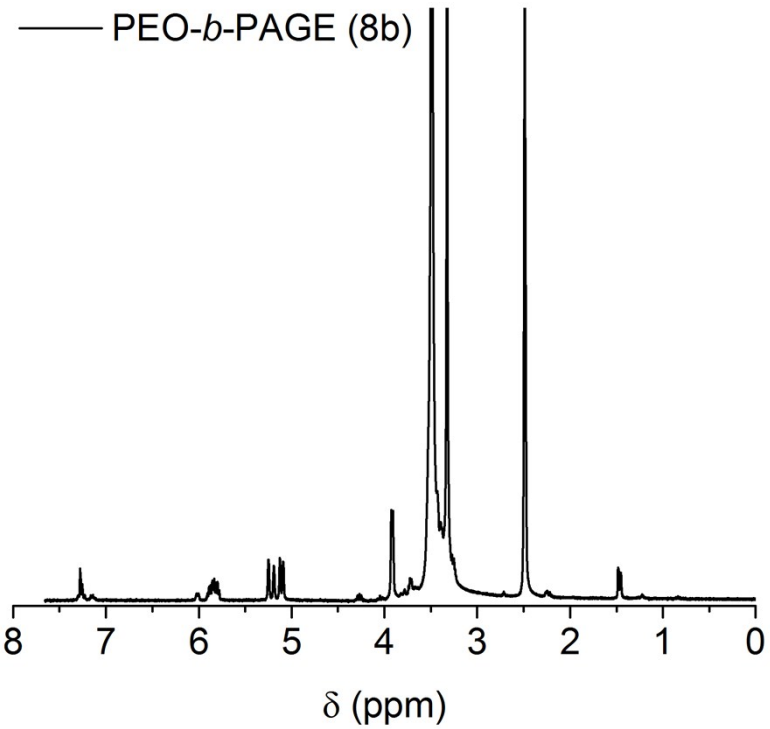

Fig. S19 ^{1}H NMR spectrum of PEO-*b*-PAGE (8b) (300 MHz, DMSO-d_6).

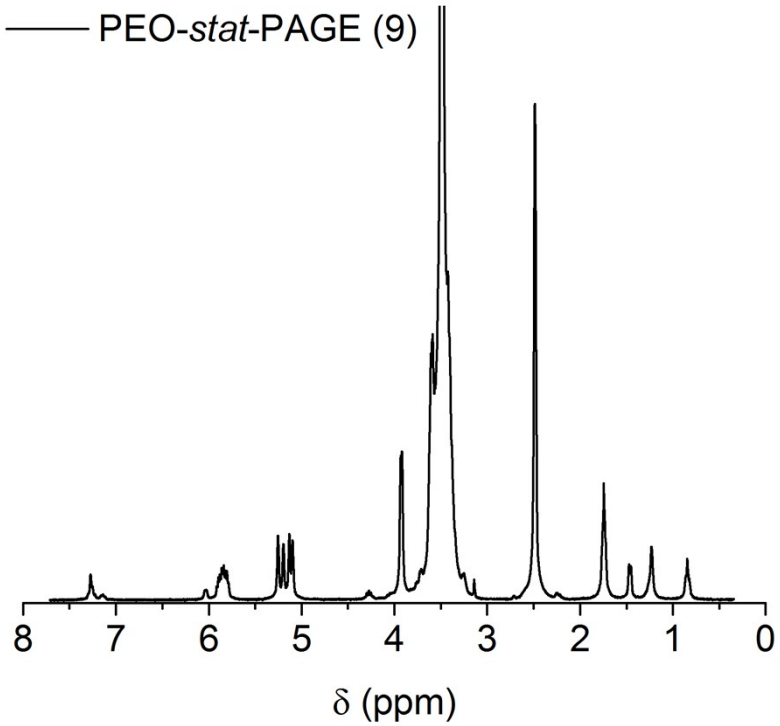

Fig. S20 ^{1}H NMR spectrum of PEO-*stat*-PAGE (9) (300 MHz, DMSO-d_6).