Electronic Supplementary Material (ESI) for Polymer Chemistry.

Supporting information

Synthesis and Self-Assembly of Poly(ferrocenyldimethylsilane)-*block*-poly(2-alkyl-2-oxazoline) Block Copolymers

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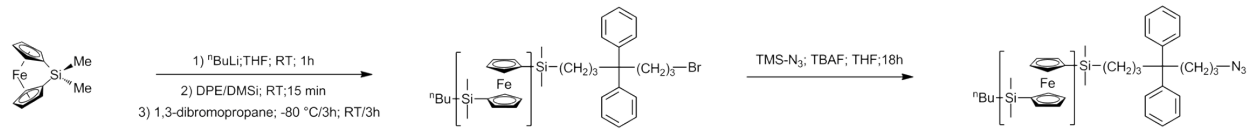

Figure S1: Synthesis of azide-functionalized PFDMS-N_3 of different molar mass.

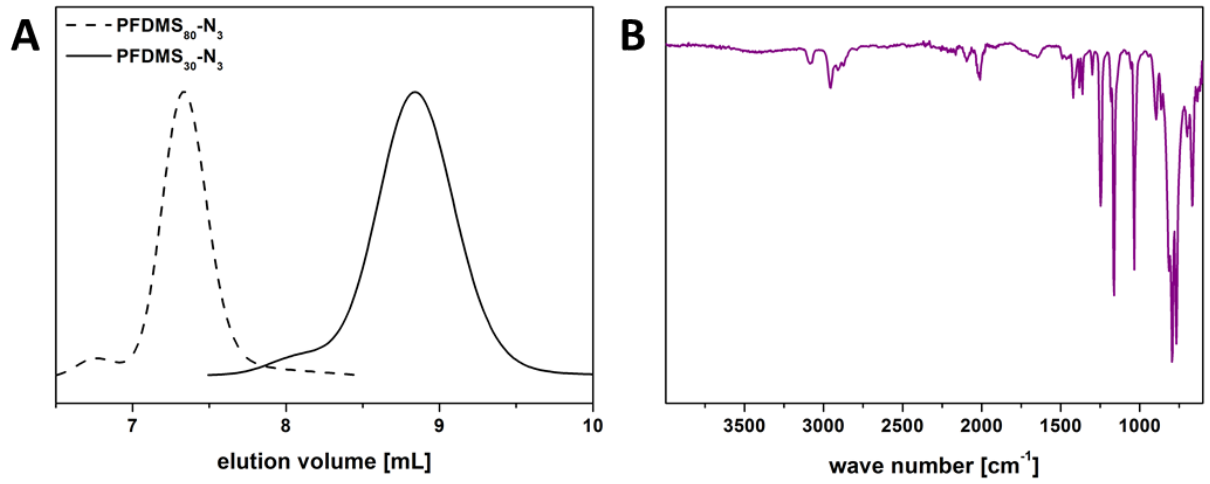

Figure S2: A) Comparison of the SEC traces for azide-modified PFDMS-N_3 with two different molar mass of 7 000 g mol^{-1} (PFDMS$_{30}$-N_3; straight black line) and 20 000 g mol^{-1} (PFDMS$_{80}$-N_3; dashed line); B) FT-IR spectrum for PFDMS$_{30}$-N_3.

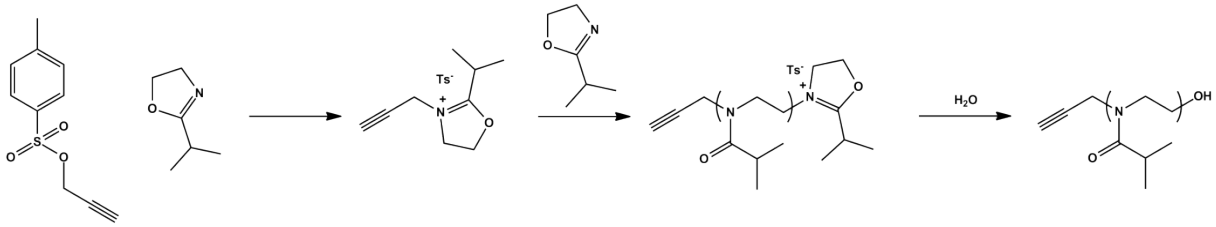

Figure S3: Synthesis of alkyne-functionalized P*i*PrOx *via* CROP initiated by propargyl *p*-toluenesulfonate.

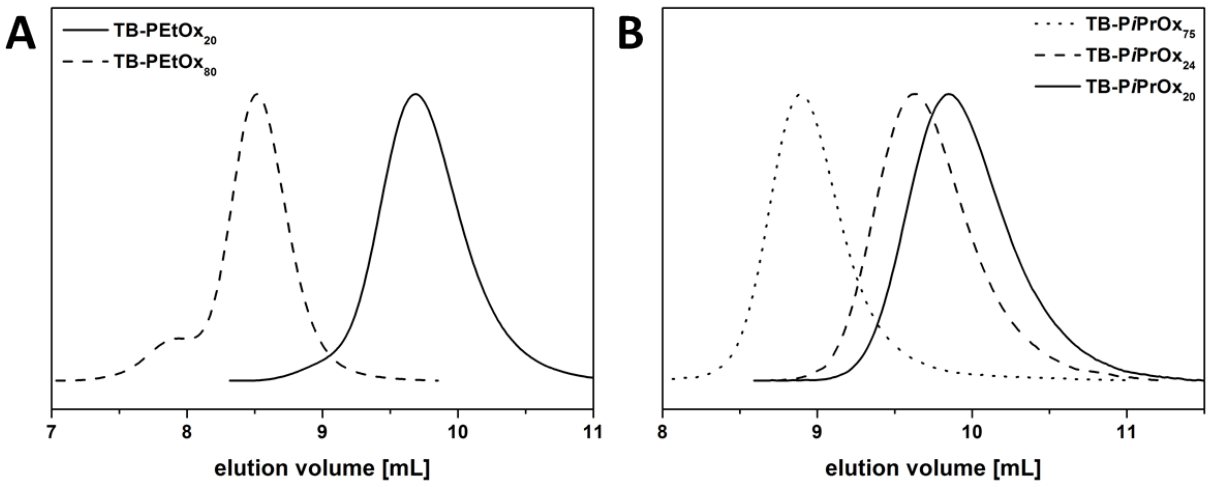

Figure S4: Comparison of SEC traces obtained for: A) TB-PEtOx$_{20}$ (straight line), TB-PEtOx$_{80}$ (dashed line); B) TB-P*i*PrOx$_{20}$ (straight line), TB-P*i*PrOx$_{24}$ (dotted line), and TB-P*i*PrOx$_{75}$ (dashed line).

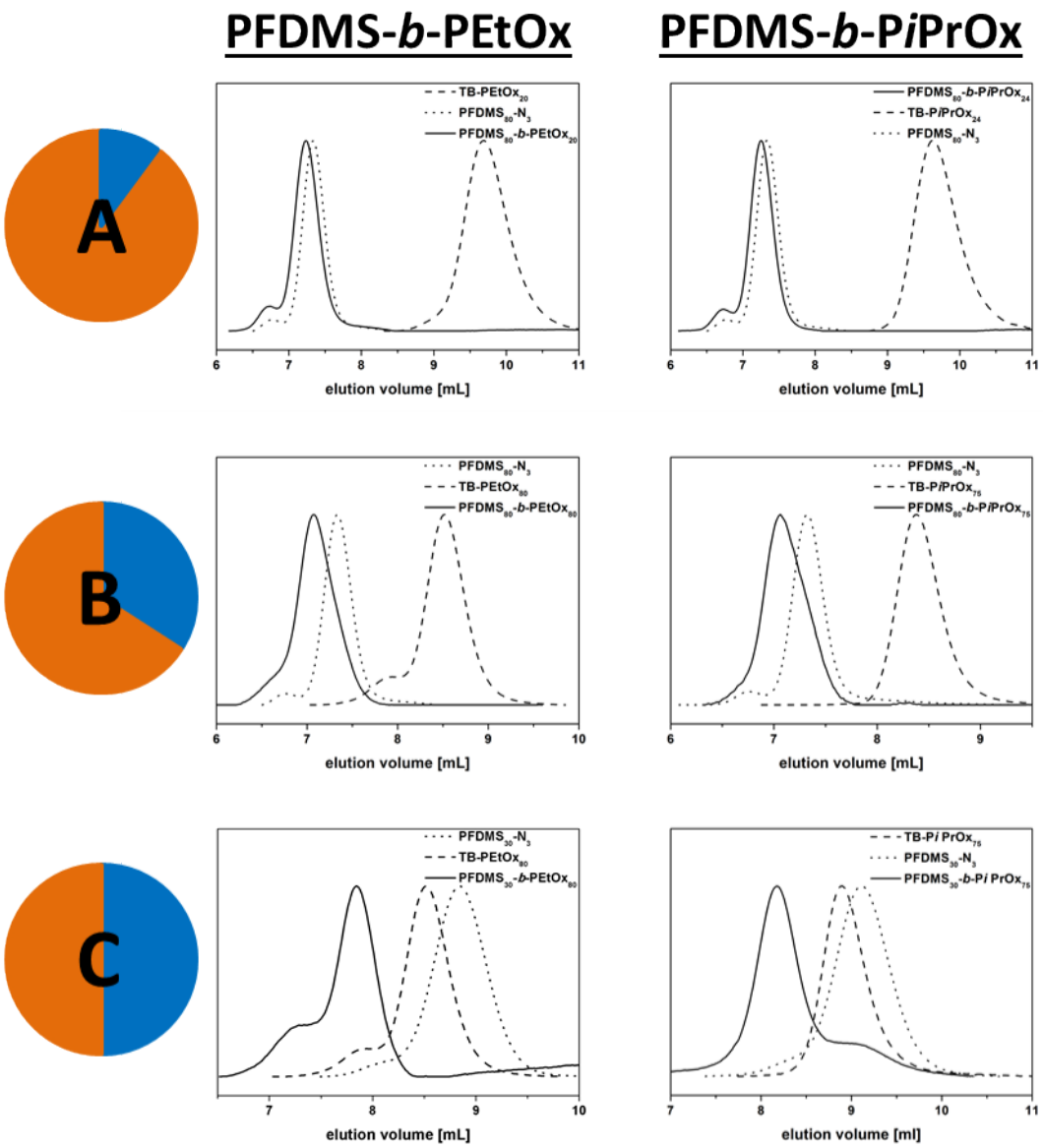

Figure S5: Comparison of SEC traces for the CuAAC click reaction between $PFDMS_x$-N_3 (dotted line) and various TB-POx_y (dashed line) synthesized block copolymers (straight line) with different ratios: A) $PFDMS_{80}$-*b*-$PEtOx_{20}$ (92/8 wt. %), $PFDMS_{80}$-*b*-P*i*$PrOx_{24}$ (88/12 wt. %); B) $PFDMS_{80}$-*b*-$PEtOx_{80}$ (71/29 wt. %), $PFDMS_{80}$-*b*-P*i*$PrOx_{75}$ (70/30 wt. %); C) $PFDMS_{30}$-*b*-$PEtOx_{80}$ (47/53 wt. %), $PFDMS_{30}$-*b*-P*i*$PrOx_{75}$ (46/54 wt. %).

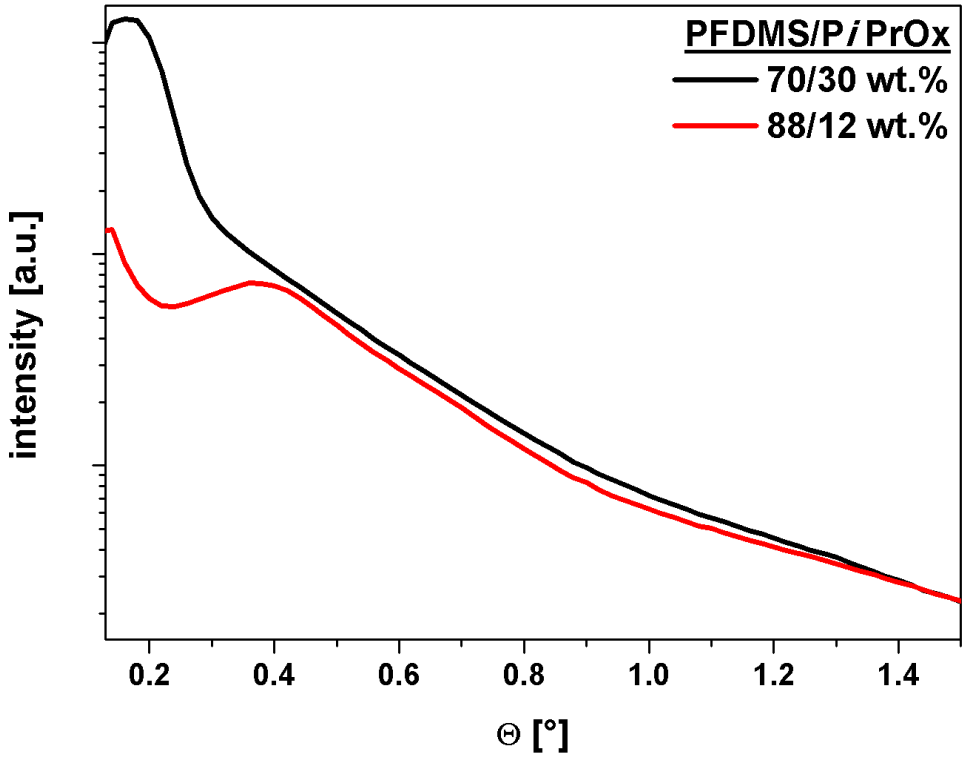

Figure S6: Comparison of SAXS patterns for different PFDMS$_x$-*b*-P*i*PrOx$_y$ diblock copolymers: 70/30 wt. % (PFDMS$_{80}$-*b*-P*i*PrOx$_{75}$; black curve), 88/12 wt. % (PFDMS$_{80}$-*b*-P*i*PrOx$_{24}$; red curve).

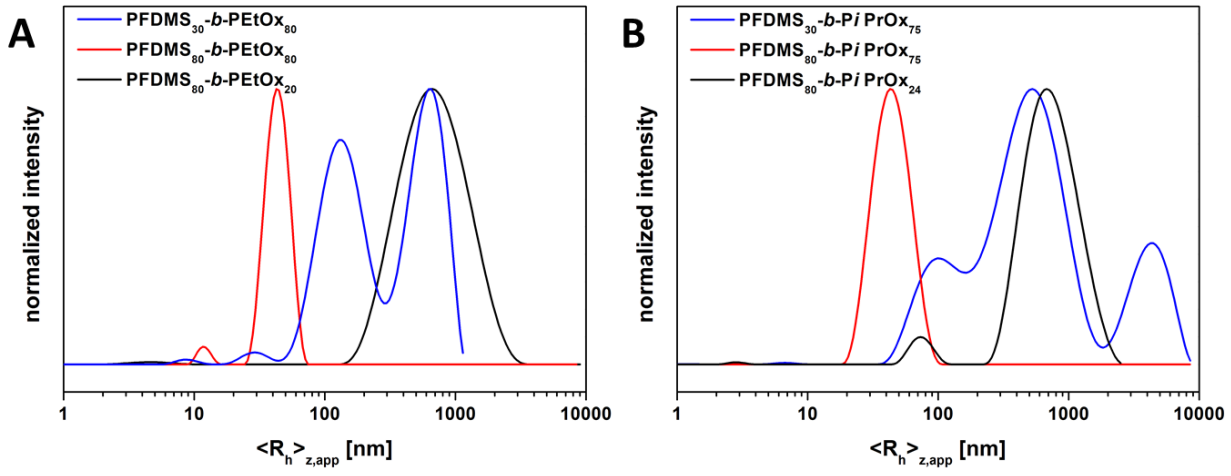

Figure S7: Comparison of DLS CONTIN plots for A) PFDMS$_{80}$-*b*-PEtOx$_{20}$ (92/8 wt. %; $\langle R_h \rangle_{z,\,app}$ = 670 nm; black trace), PFDMS$_{80}$-*b*-PEtOx$_{80}$ (71/29 wt. %, $\langle R_h \rangle_{z,\,app}$ = 12 and 43 nm; red trace), PFDMS$_{30}$-*b*-PEtOx$_{80}$ (47/53 wt. %; $\langle R_h \rangle_{z,\,app}$ = 9, 30, 135 and 630 nm; blue trace); B) PFDMS$_{80}$-*b*-P*i*PrOx$_{24}$ (88/12 wt. %; $\langle R_h \rangle_{z,\,app}$ = 73 and 680 nm; black trace); PFDMS$_{80}$-*b*-P*i*PrOx$_{75}$ (70/30 wt. %; $\langle R_h \rangle_{z,\,app}$ = 45 nm; red trace); PFDMS$_{30}$-*b*-P*i*PrOx$_{75}$ (46/54 wt. %; $\langle R_h \rangle_{z,\,app}$ = 100, 525 and 4300 nm; blue trace) at a constant concentration of 0.5 mg mL^{-1} in acetone.

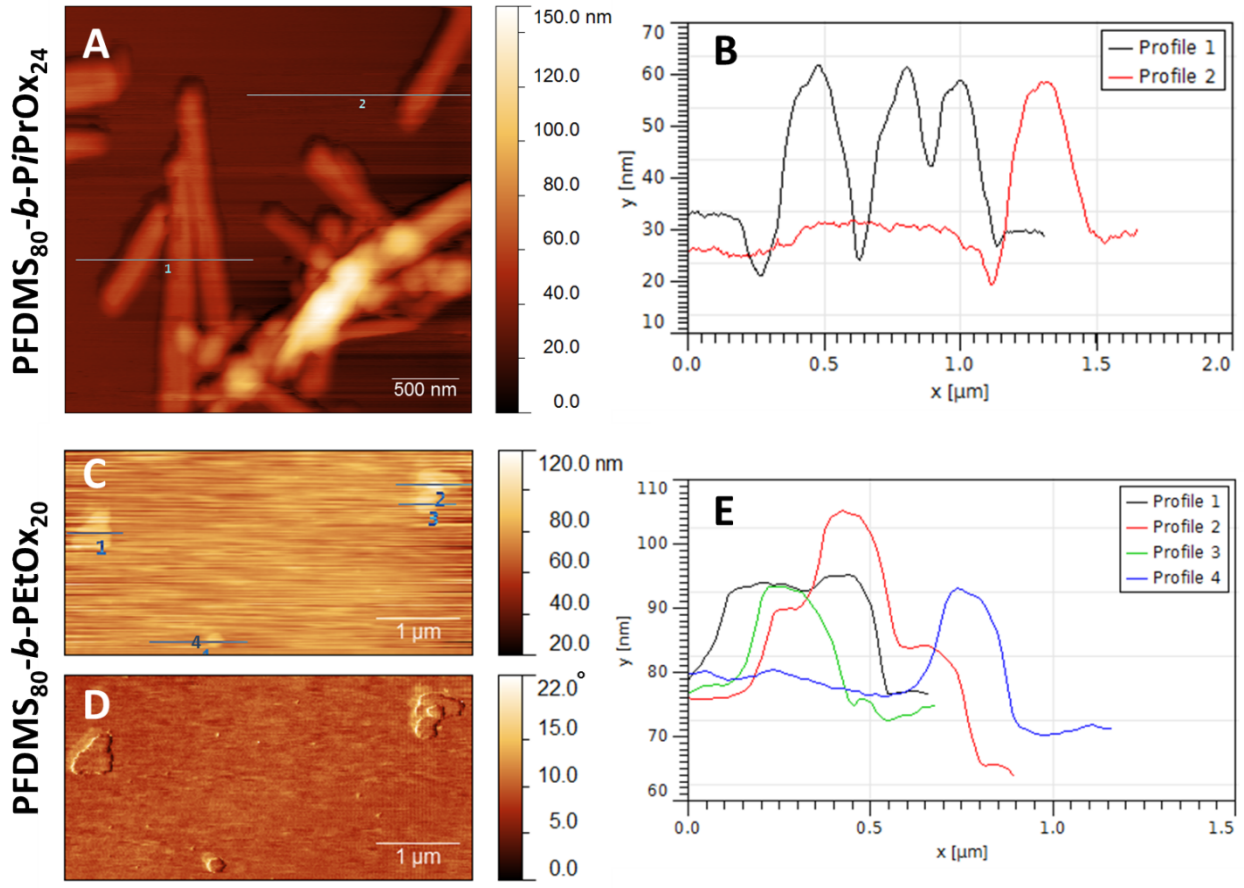

Figure S8: Comparison of AFM images for sheet forming block copolymers drop-casted from acetone: Height image (A) of PFDMS$_{80}$-*b*-PiPrOx$_{24}$ (88/12 wt. %) and the corresponding height profile (B, ~15-30 nm); height image (C) of PFDMS$_{80}$-*b*-PEtOx$_{20}$ (92/8 wt. %) and the corresponding phase image (D) and the height profile (E, ~15 nm).

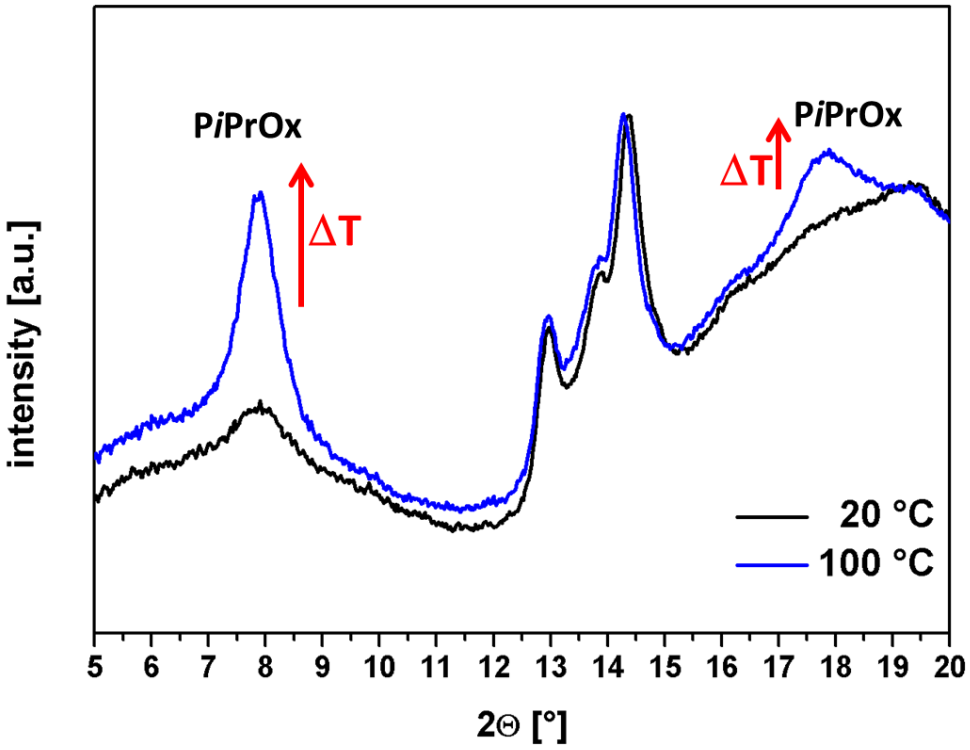

Figure S9: Wide angle x-ray scattering for $PFDMS_{30}$-*b*-P*i*$PrOx_{75}$ (46/54 wt.%) at different temperatures: 20 °C (black curve), and after heating to 100 °C (2 h@100 °C; blue curve).