Electronic Supplementary Material (ESI) for Polymer Chemistry.

Supporting Information

Improvement of the Control over SARA ATRP of 2-(Diisopropylamino)ethyl Methacrylate by Slow and Continuous Addition of Sodium Dithionite

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Results

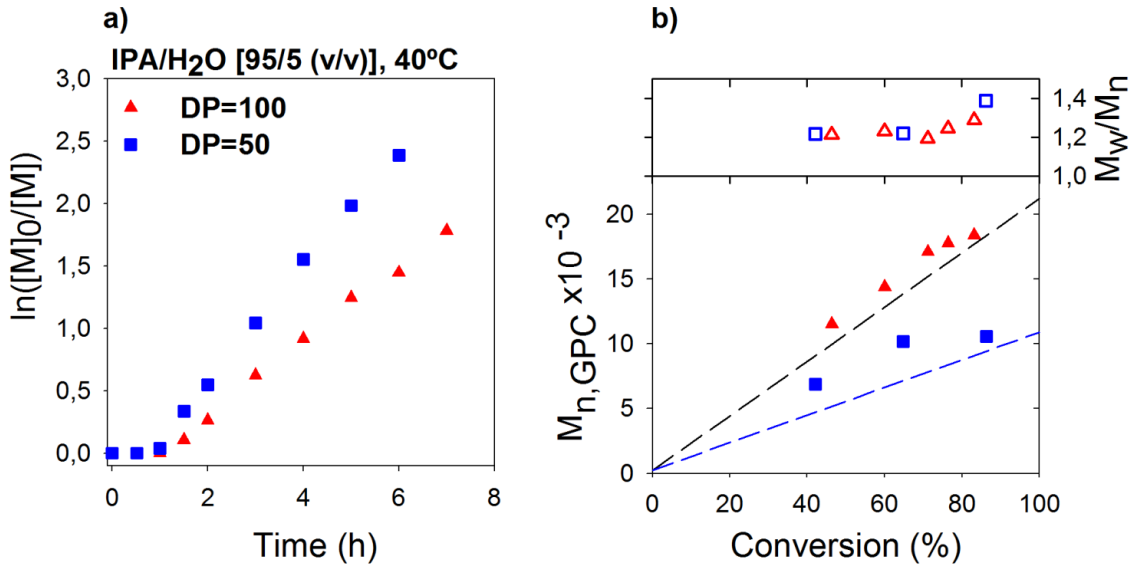

Fig. S1 Effect of target DP on the SARA ATRP of DPA in isopropanol/water = 0.95/0.05 (v/v) at 40 °C. (A) First-order kinetic plot, (B) evolution of molecular weight and M_w/M_n with conversion (the dashed line represents theoretical molecular weight at a given conversion). Reaction conditions: $[DPA]_0$ /$[EBPA]_0$ /$[Na_2S_2O_4]_0$ /$[CuBr_2]_0$ /$[Me_6TREN]_0$ = 100/1/0.5/0.1/0.1 (molar) and $[DPA]_0$ /$[EBPA]_0$ /$[Na_2S_2O_4]_0$ /$[CuBr_2]_0$ /$[Me_6TREN]_0$ = 50/1/0.5/0.1/0.2.

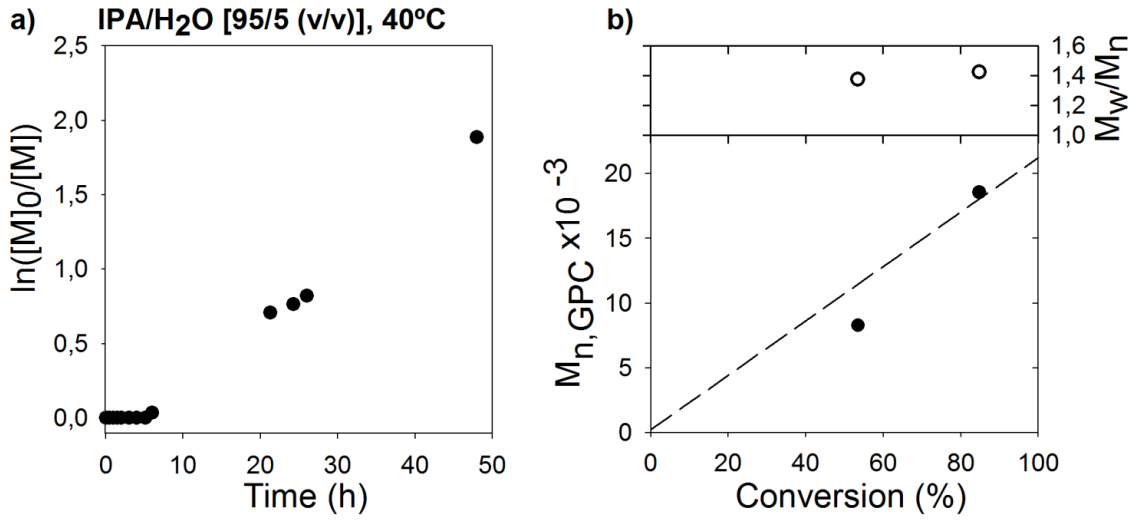

Fig. S2 SARA ATRP of DPA with $Na_2S_2O_4$, in isopropanol/water = 0.95/0.05 (v/v) at 40 °C. (a) First-order kinetic plot, (b) evolution of molecular weight and M_w/M_n with conversion (the dashed line represents theoretical molecular weight at a given conversion). Conditions: $[DPA]_0/[EBiB]_0/[Na_2S_2O_4]_0/[CuBr_2]_0/[Me_6TREN]_0$ = 100/1/0.3/0.1/0.1 (molar).

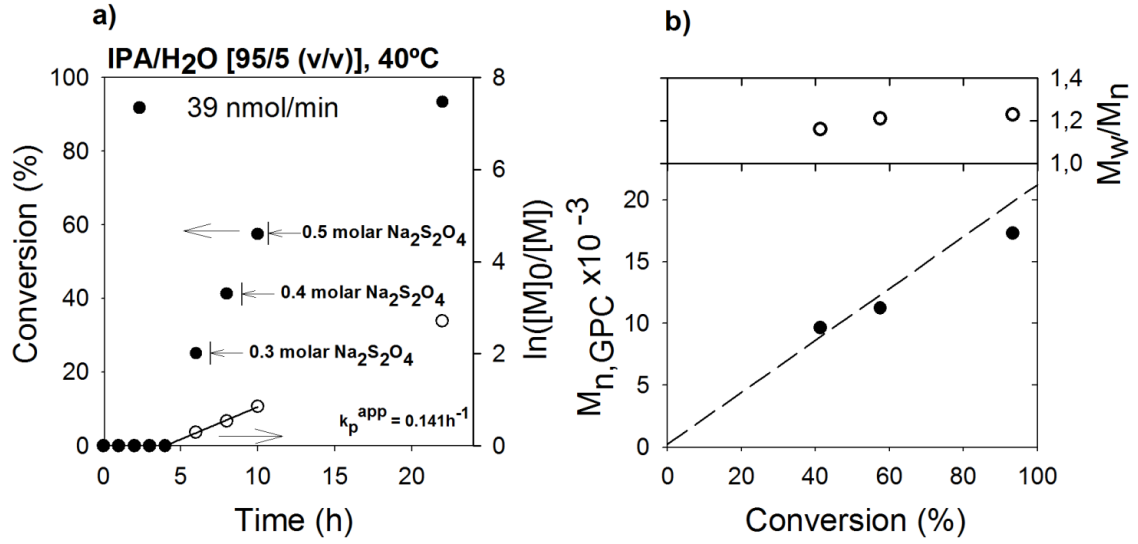

Fig S3 SARA ATRP of DPA with feeding rate of aqueous solution of $Na_2S_2O_4$, 39.1nmol/min, in isopropanol/water = 0.95/0.05 (v/v) at 40 °C. (a) First-order kinetic plot, (b) evolution of molecular weight and M_w/M_n with conversion (the dashed line represents theoretical molecular weight at a given conversion). Conditions: $[DPA]_0/[EBPA]_0/[Na_2S_2O_4]_0/[CuBr_2]_0/[Me_6TREN]_0$ = 100/1/0/0.1/0.2 (molar).

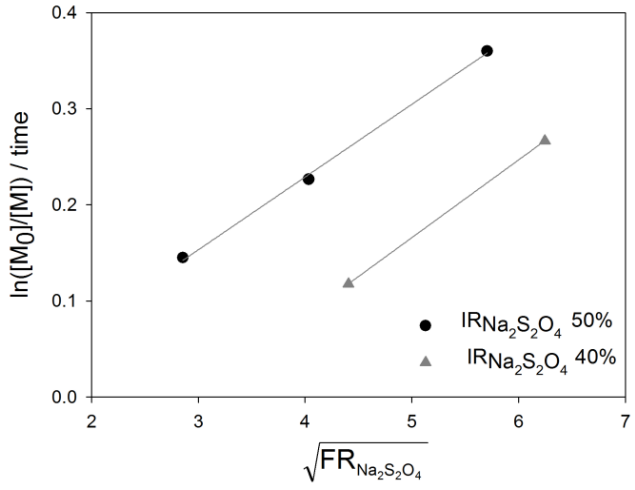

Fig S4 Effect of the feeding rate ($FR_{Na2S2O4}$) on the polymerization rate; $\ln([M_0]/[M])$/time *vs* $\sqrt{FR_{Na2S2O4}}$.

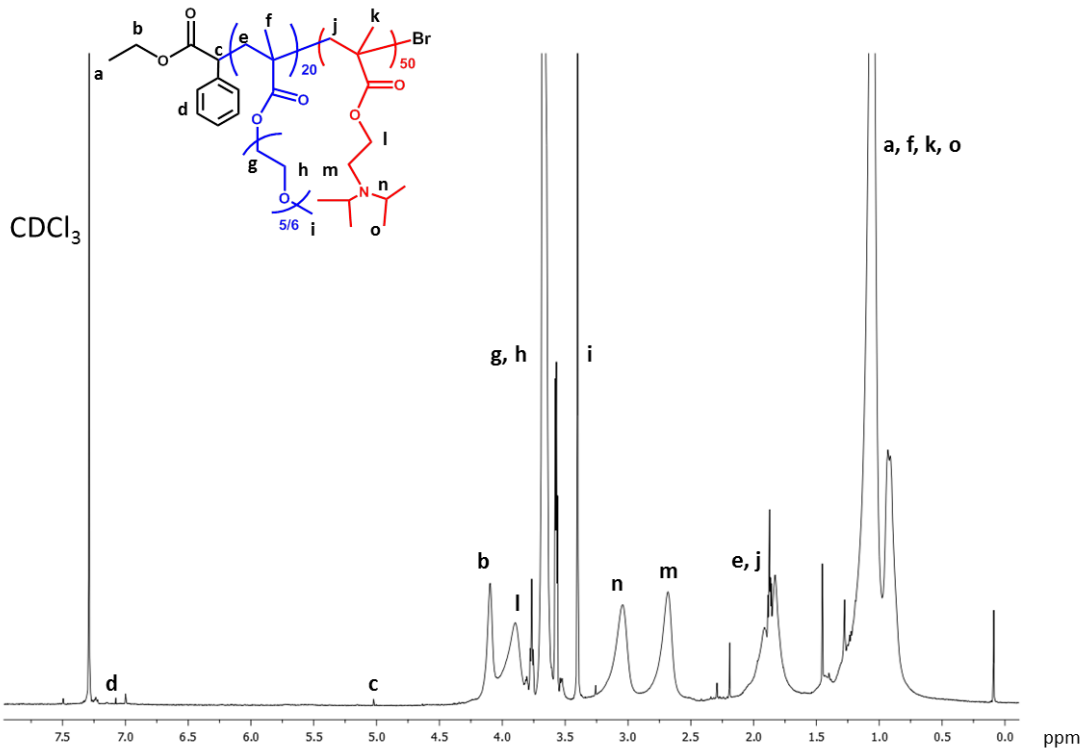

Fig S5 ^{1}H NMR spectra of poly(OEOMA$_{475}$-*b*-DPA) block copolymer in $CDCl_3$, $M_{n,GPC}$=23,200g/mol; M_w/M_n = 1.29