Synthesis and post-polymerisation modification of an epoxy-functional polycarbonate

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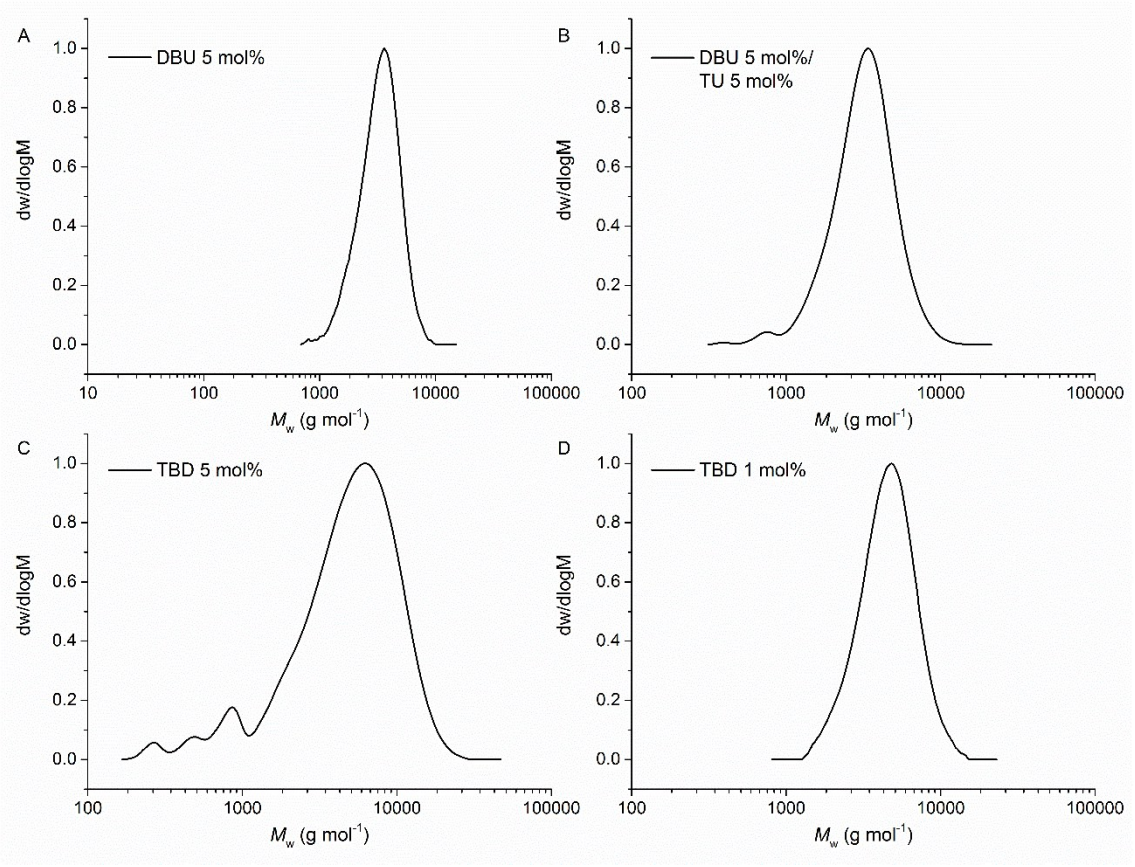

Figure S1 SEC chromatograms ($CHCl_3$, RI) of PTMOC prepared from 4-methoxybenzyl alcohol catalysed by A) 5 mol% of DBU, B) 5 mol% of DBU and 5 mol% of TU, C) 5 mol% of TBD and D) 1 mol% of TBD.

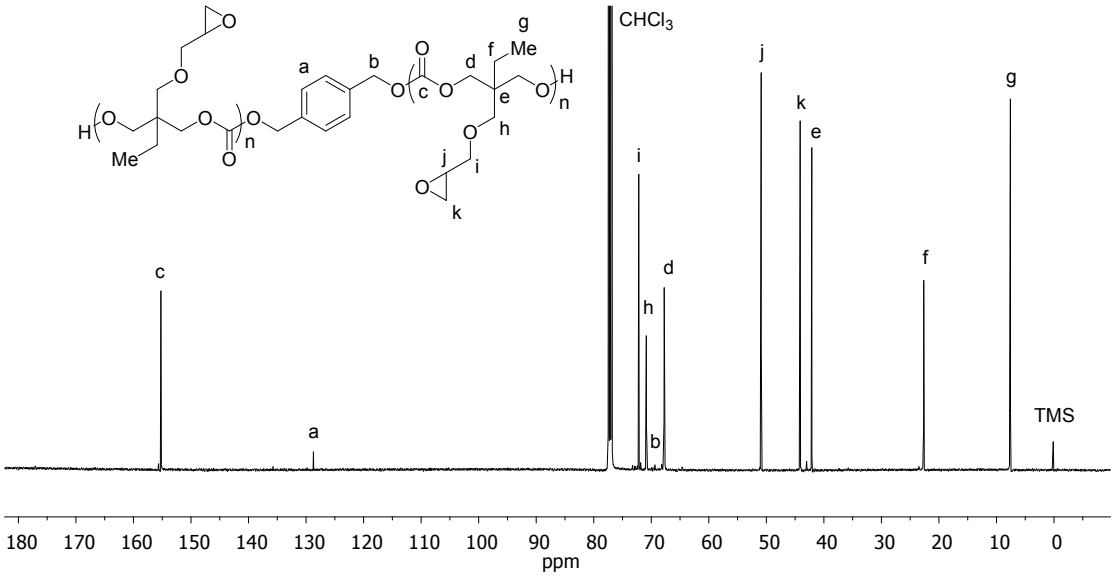

Figure S2 ^{13}C NMR spectrum of $PTMOC_{69}$ ($CDCl_3$, 125 MHz, 298 K).

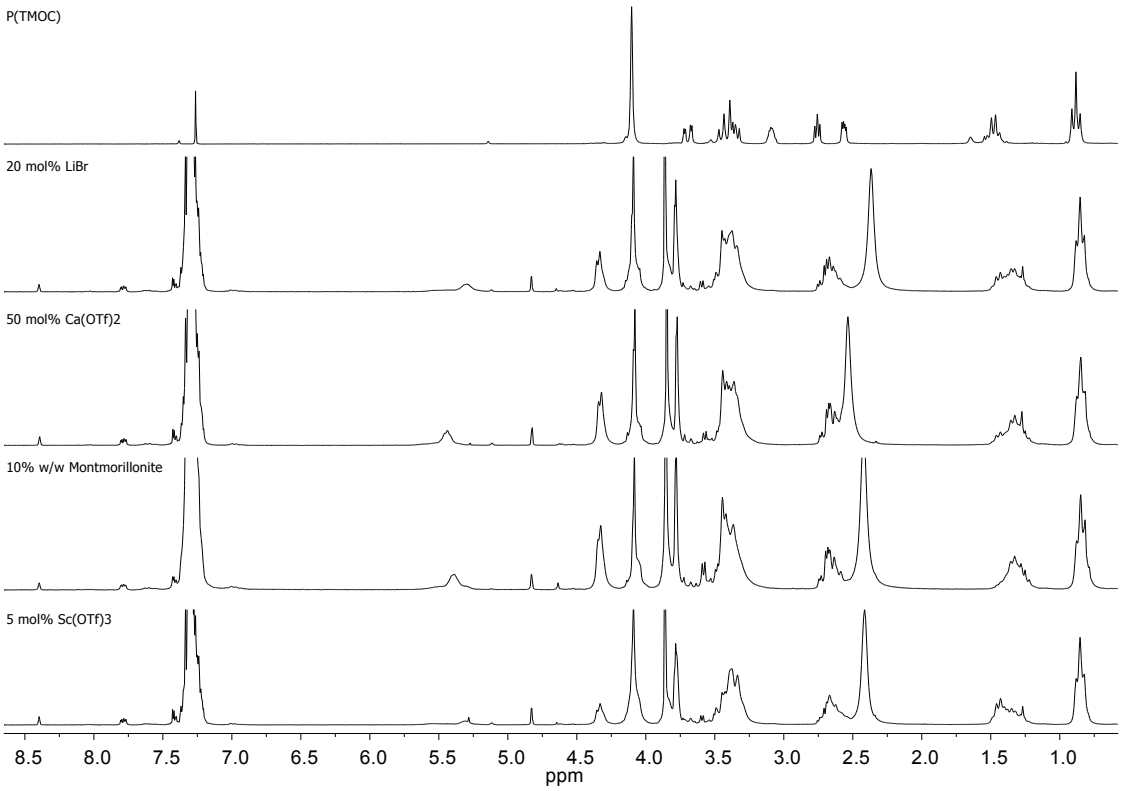

Figure S3 ^{1}H NMR spectra of functionalisation of PTMOC with benzylamine with different catalysts ($CDCl_3$, 250 MHz, 298 K).

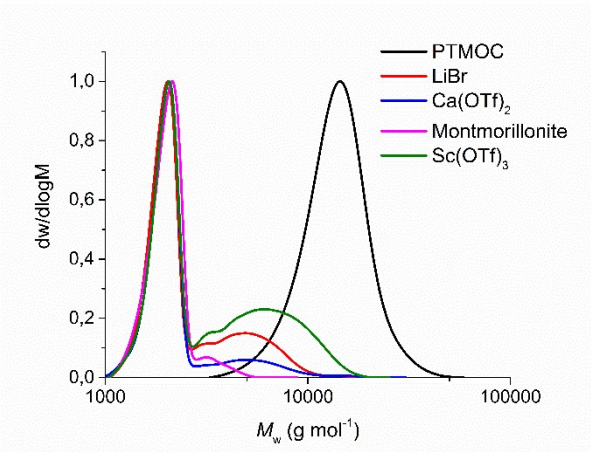

Figure S4 SEC chromatograms (DMF, RI) of PTMOC before (M_n = 12.5 kg mol^{-1}; $Đ_M$ = 1.15) and after post-polymerisation functionalisation with benzylamine using different catalysts.

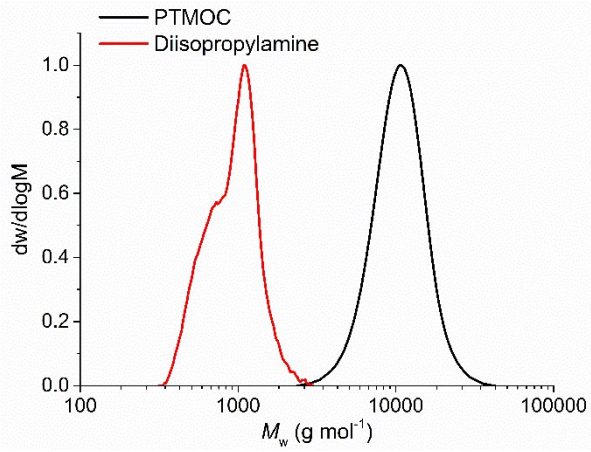

Figure S5 SEC chromatograms (DMF, RI) of PTMOC before (M_n = 9.7 kg mol^{-1}; $Đ_M$ = 1.16) and after post-polymerisation functionalisation with diisopropylamine (M_n = 0.9 kg mol^{-1}; $Đ_M$ = 1.15).

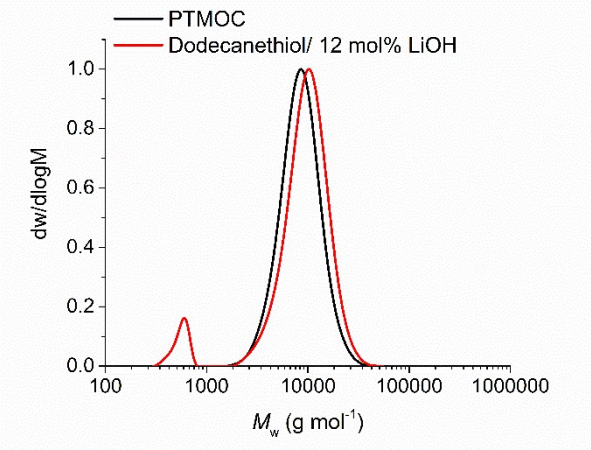

Figure S6 SEC chromatograms ($CHCl_3$, RI) of PTMOC before (M_n = 7.5 kg mol^{-1}; $Đ_M$ = 1.23) and after post-polymerisation functionalisation with 1-dodecanethiol catalysed by 12 mol% of LiOH (M_n = 8.3 (0.5) kg mol^{-1}; $Đ_M$ = 1.29 (1.04)).

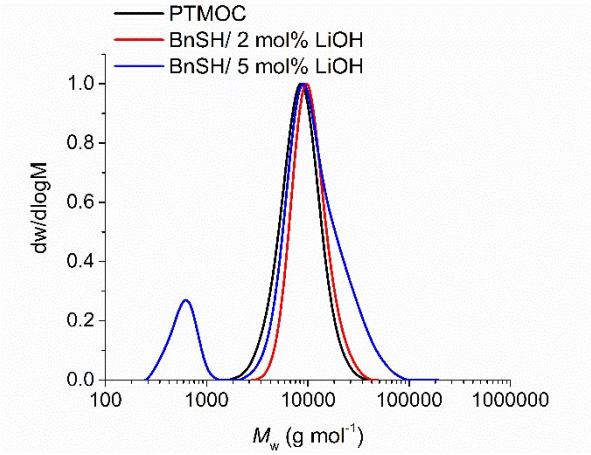

Figure S7 SEC chromatograms ($CHCl_3$, RI) of PTMOC before (M_n = 7.5 kg mol^{-1}; $Đ_M$ = 1.23) and after post-polymerisation functionalisation with 1.25 equivalents of benzylmercaptan catalysed by 2 mol% of LiOH (M_n = 9.6 kg mol^{-1}; $Đ_M$ = 1.17) and 5 mol% of LiOH (M_n = 9.6 (0.6) kg mol^{-1}; $Đ_M$ = 1.47 (1.09)).

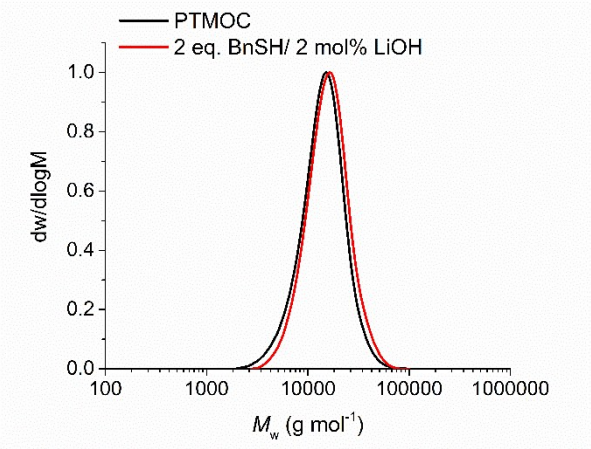

Figure S8 SEC chromatograms ($CHCl_3$, RI) of PTMOC before (M_n = 12.1 kg mol^{-1}; $Đ_M$ = 1.28) and after post-polymerisation functionalisation with 2.0 equivalents of benzylmercaptan catalysed by 2 mol% of LiOH (M_n = 13.9 kg mol^{-1}; $Đ_M$ = 1.26).

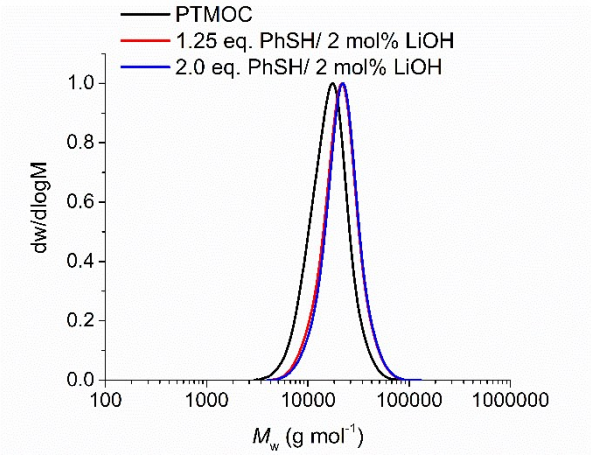

Figure S9 SEC chromatograms (DMF, RI) of PTMOC before (M_n = 14.2 kg mol^{-1}; $Đ_M$ = 1.21) and after post-polymerisation functionalisation with 1.25 equivalents of thiophenol catalysed by 2 mol% of LiOH (M_n = 18.8 kg mol^{-1}; $Đ_M$ = 1.19) and with 2.0 equivalents of thiophenol catalysed by 2 mol% of LiOH (M_n = 18.4 kg mol^{-1}; $Đ_M$ = 1.19).

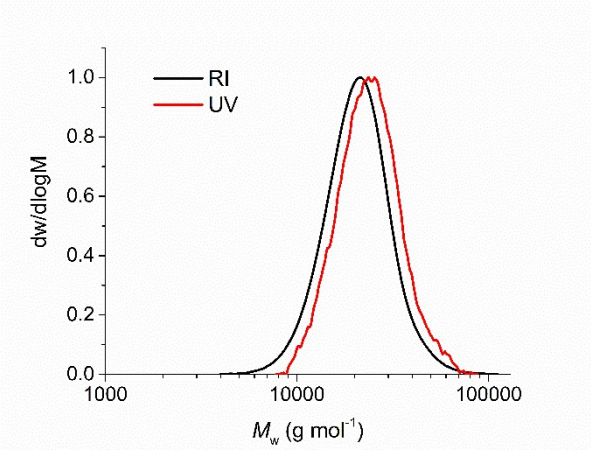

Figure S10 SEC chromatograms from the RI and UV detectors (DMF) of a post-polymerisation functionalisation of PTMOC with thiophenol catalysed by DBU.

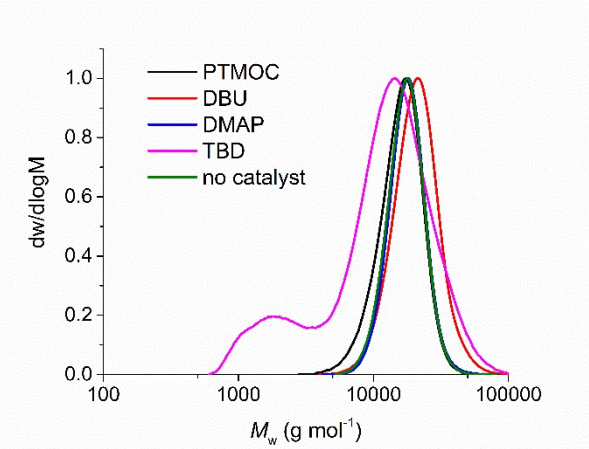

Figure S11. SEC chromatograms (DMR, RI) of PTMOC before (M_n = 14.7 kg mol^{-1}; $Đ_M$ = 1.15) and after post-polymerisation functionalisation with thiophenol catalysed by 2 mol% of DBU (M_n = 19.0 kg mol^{-1}; $Đ_M$ = 1.16), DMAP (M_n = 16.8 kg mol^{-1}; $Đ_M$ = 1.10), TBD (M_n = 6.5 kg mol^{-1}; $Đ_M$ = 2.33) and without addition of any catalyst (M_n = 16.4 kg mol^{-1}; $Đ_M$ = 1.10).

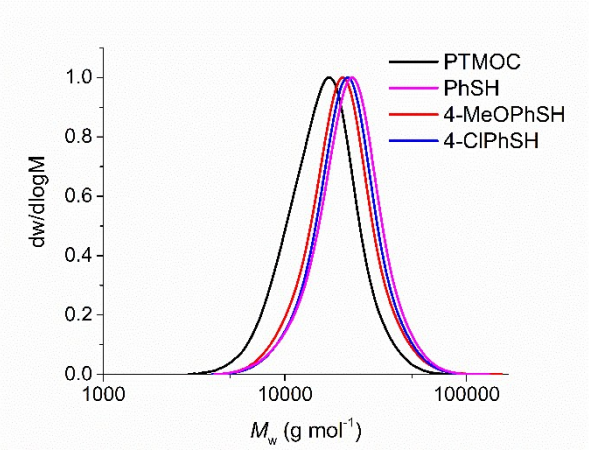

Figure S12 SEC chromatograms (DMF, RI) of PTMOC before (M_n = 14.2 kg mol^{-1}; $Đ_M$ = 1.21) and after post-polymerisation functionalisation with 4-methoxythiophenol (M_n = 19.4 kg mol^{-1}; $Đ_M$ = 1.19) and with 4-chlorothiophenol (M_n = 19.5 kg mol^{-1}; $Đ_M$ = 1.18).