Electronic Supplementary Material (ESI) for Polymer Chemistry.

Mechanosynthesized Copper (I) complex based initiating systems for redox polymerization: towards upgraded oxidizing and reducing agents

P. Garra[1], F. Dumur[2], A. Al Mousawi[1], B. Graff[1], D. Gigmes[2], F. Morlet-Savary[1], C. Dietlin[1], J.P. Fouassier, J. Lalevée[1]*

[1]Institut de Science des Matériaux de Mulhouse IS2M, UMR CNRS 7361, UHA; 15, rue Jean Starcky, 68057 Mulhouse Cedex, France

[2]Aix Marseille Univ, CNRS, Institut de Chimie Radicalaire ICR, F-13397 Marseille, France

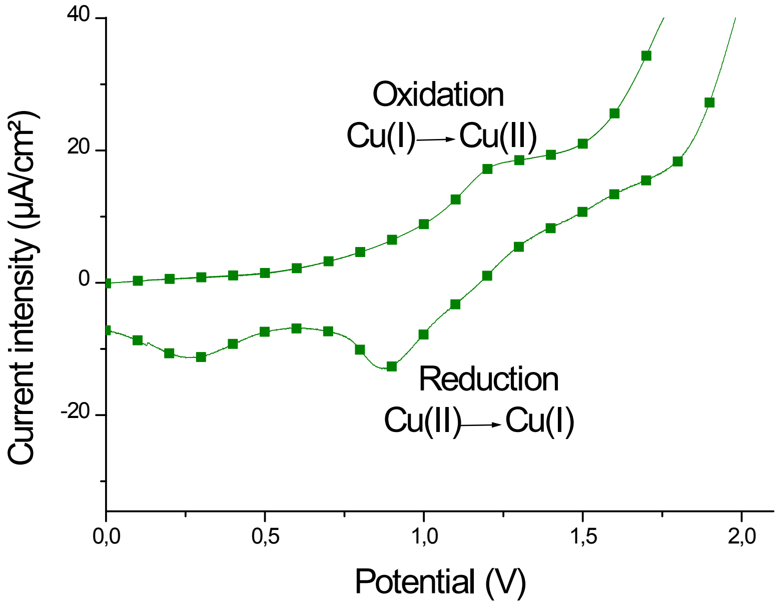


Figure S1: Cyclic voltammogram of 3 mM M-CuC-1Cl in DCM under air, sweeping rate 0.1 V/S, potential vs SCE.

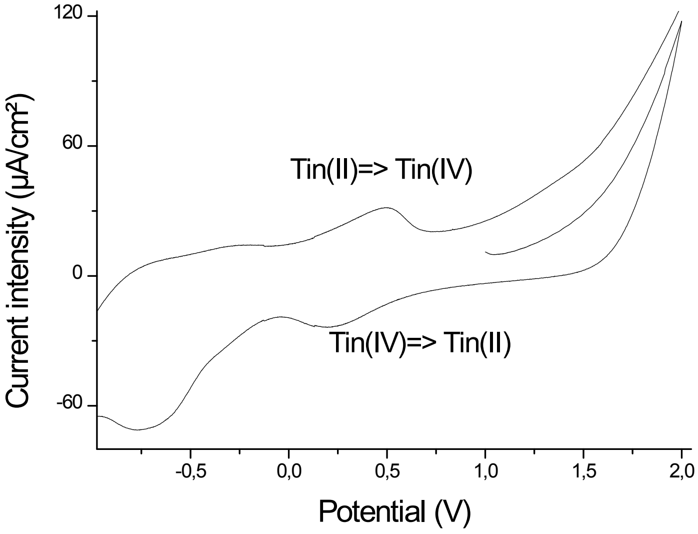
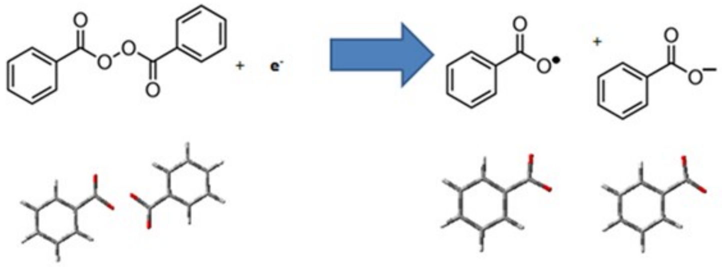


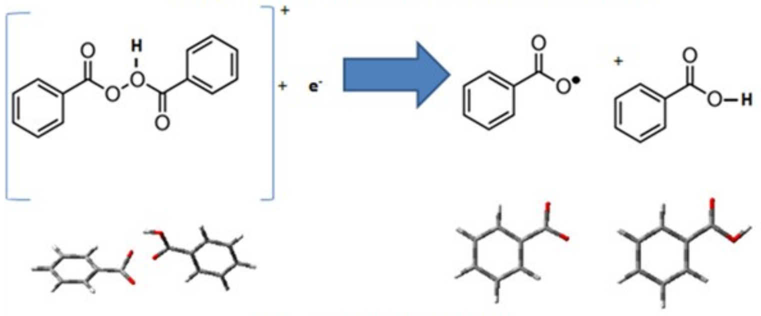
Figure S2: Cyclic voltammogram of 10 mM Tin(II) in DCM under nitrogen, sweeping rate 0.2 V/S, potential vs SCE.

BPO / Normal redox dissociation



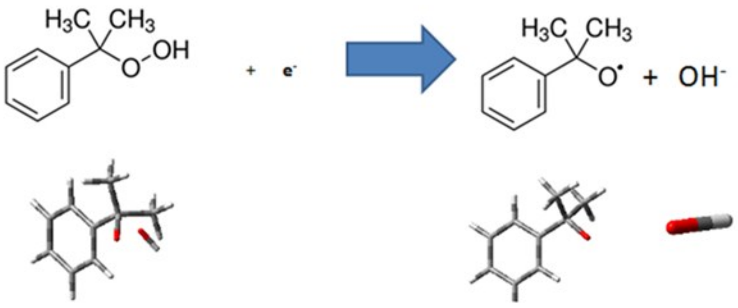
$\Delta H = -38.98$ kcal mol^{-1}

BPO / Protonated redox dissociation



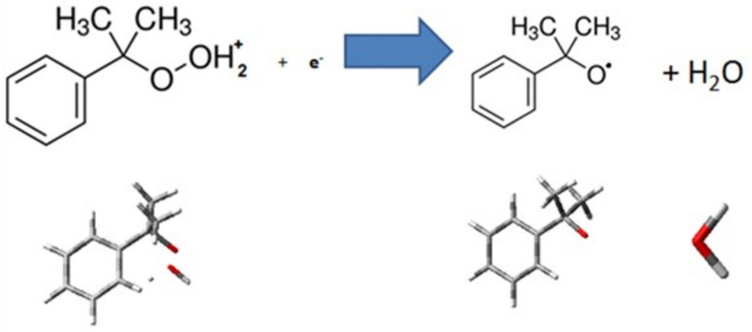
$\Delta H = -180.72$ kcal mol^{-1}

CHP / Normal redox dissociation



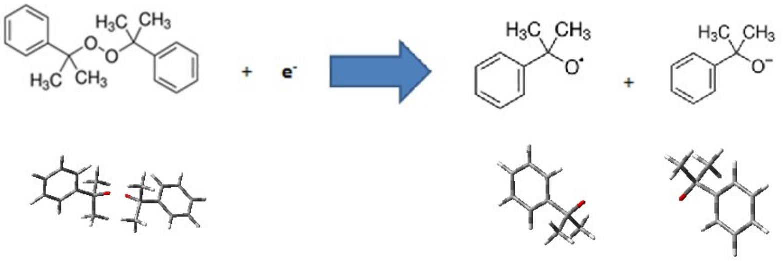
$\Delta H = 44.82$ kcal mol^{-1}

CHP / Protonated redox decomposition



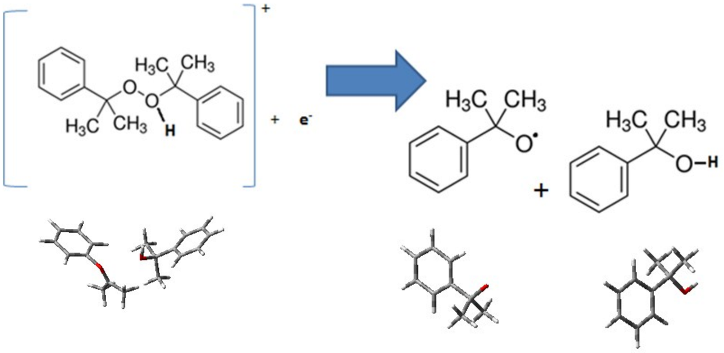
$\Delta H = -190.83$ kcal mol^{-1}

DCP / Normal redox decomposition



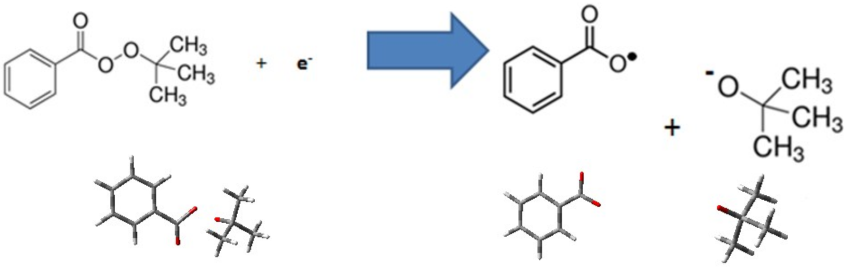
$\Delta H = -1.14$ kcal mol^{-1}

DCP / Protonated redox decomposition



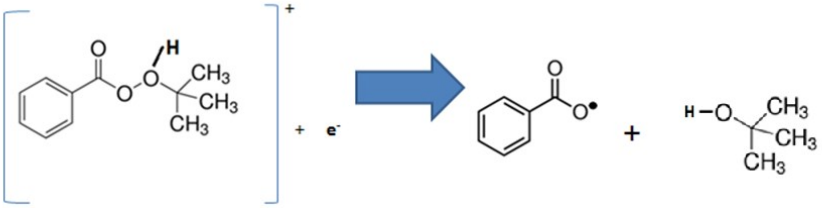
$\Delta H = -112.13$ kcal mol^{-1}

tBu-PBz / Normal redox decomposition



$\Delta H = 10.86$ kcal mol^{-1}

tBu-PBz / Protonated redox decomposition



$\Delta H = -164.13$ kcal mol^{-1}

Figure S3: Optimized structures and reaction enthalpies of the redox and protonated redox decomposition reactions for BPO, CHP, DCP and tBu-PBz. Computed at UB3LYP/LANL2DZ level.