

### Description of Additional Supplementary Files

File Name: Supplementary Movie 1

Description: Movie illustrating the rapid polymerization of BLG-NCA in the presence of 18-C-6, with the vigorous evolution of CO<sub>2</sub> bubbles.  $[M]_0/[I]_0 = 100$ ,  $[I]_0 = [CE]_0 = 4$  mM.

File Name: Supplementary Movie 2

Description: Molecular dynamics simulation of 30 mM DBLG and 3 mM BLG-NCA in DCM. Simulations of 105 DBLG, 11 BLG-NCA, and 51,920 DCM molecules were conducted at 298 K and 1 bar over the course of 10 ns. Snapshots are visualized every 10 ps. DCM solvent is not visualized for clarity. Movie is constructed using Visual Molecular Dynamics<sup>25</sup>.

File Name: Supplementary Movie 3

Description: Molecular dynamics simulation of 30 mM DBLG, 3 mM BLG-NCA, and 3 mM 18-C-6 in DCM. Simulations of 105 DBLG, 11 BLG-NCA, 11 18-C-6, and 51,839 DCM molecules were conducted at 298 K and 1 bar over the course of 10 ns. Snapshots are visualized every 10 ps. DCM solvent is not visualized for clarity. Movie is constructed using Visual Molecular Dynamics<sup>25</sup>.