Supporting Information

Breathable microgel-colloidosome: Gas-switchable microcapsules with O_2 and CO_2 tunable shell permeability for hierarchical size-selective control-release

Lei Lei,[1] Qi Zhang,[2] Shuxian Shi,[3,] Shiping Zhu[1,*]*

[1] Department of Chemical Engineering, McMaster University, Hamilton, Canada, L8S 4L7

[2] College of Chemical Engineering, Zhejiang University of Technology, Hangzhou 310014, China

[3] Key Laboratory of Carbon Fiber and Functional Polymers (Ministry of Education), Beijing University of Chemical Technology, Beijing 100029, China

* Corresponding authors: Shiping Zhu at McMaster: shipingzhu@mcmaster.ca; Shuxian Shi at BUCT: shisx@mail.buct.edu.cn.

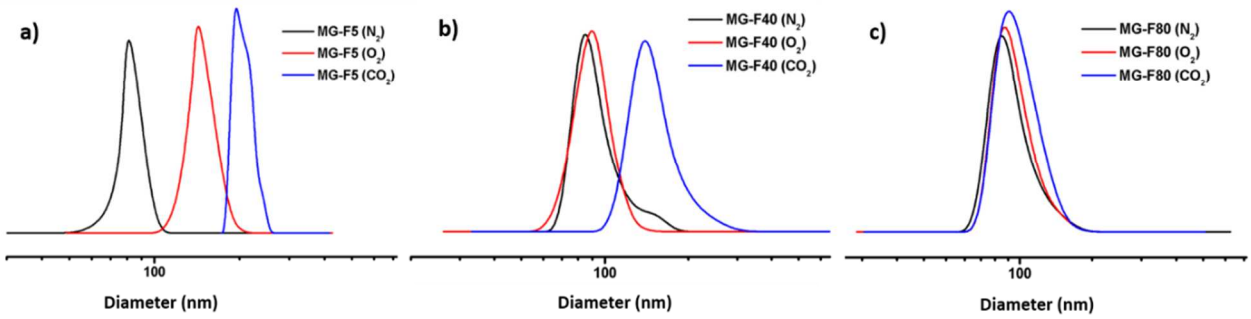

Figure S1. *Dynamic light scattering (DLS) characterization of the gas (O_2 and CO_2)-switchable hydrodynamic size for P(DEA-co-FS) microgels with different FS content. a) MG-F5 (FS = 5 wt%), b) MG-F40 (FS = 40 wt%), c) MG-F80 (FS = 80 wt%).*

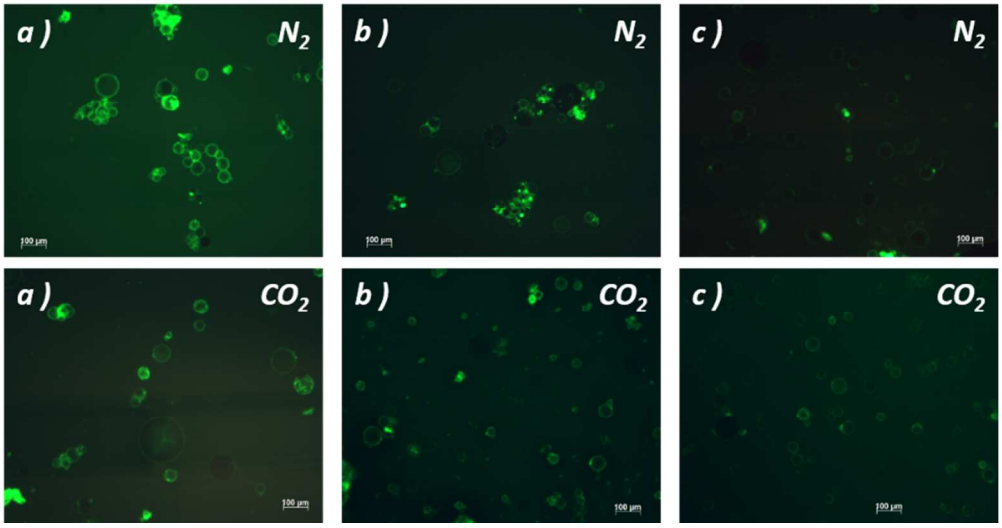

Figure S2. *Fluorescence microscope images of the microgel-colloidosomes (MGC-F5) with 0.5, 1.0 and 2.0 wt% PPGDEG (based on microgel mass) for inter microgel (MG-MG) cross-linking: before (N_2) and after CO_2 treatment.*

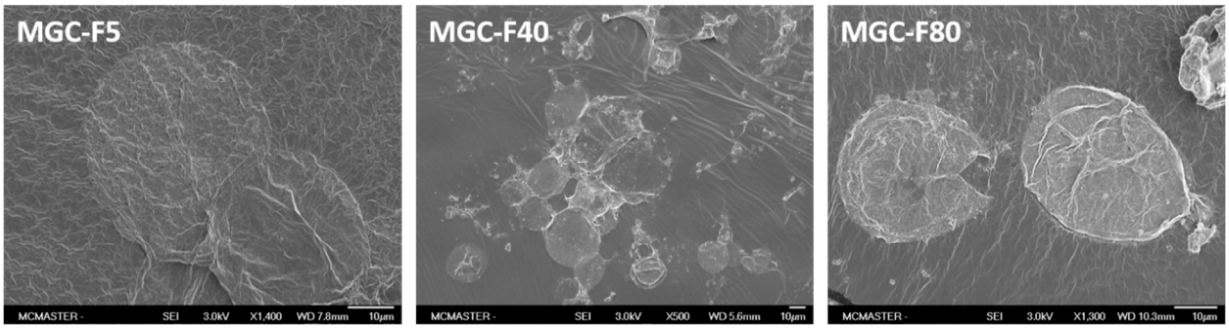

Figure S3. *SEM image of MGC-F5, MGC-F40 and MGC-F80.*