Supplementary Information

Lightweight, thermally insulating, and low dielectric microcellular high-impact polystyrene (HIPS) foams fabricated by high-pressure foam injection molding with mold opening

Guilong Wang^{a,*}, Guoqun Zhao^{a,*}, Guiwei Dong^a, Libin Song^{a,*}, Chul B. Park^b

^a Key Laboratory for Liquid-Solid Structural Evolution and Processing of Materials (Ministry of Education), Shandong University, Jinan, Shandong 250061, China
^b Microcellular Plastics Manufacturing Laboratory, Department of Mechanical and Industrial Engineering, University of Toronto, Toronto, Ontario M5S 3G8, Canada

*To whom correspondence should be addressed.

E-mail addresses: <u>guilong@sdu.edu.cn</u> (G. Wang), <u>zhaogq@sdu.edu.cn</u> (G. Zhao), and <u>derby@sdu.edu.cn</u> (L. Song).

Content:

Fig. S1 Cellular morphology at different locations of the representative foam prepared by high-pressure foam injection molding with mold opening

Fig. S2 Mold cavity pressure curves recorded during high-pressure foam injection molding process with different cooling time: (a) 0 s, (b) 10 s, (c) 20 s, and (d) 30 s.

Fig. S3 SEM images of the foamed sample fabricated with cooling time of 180 s.

Fig. S4 Recorded cavity pressure variations at location C when opening injection mold with different speed.



Fig. S1 Cellular morphology at different locations of the representative foam prepared by high-pressure foam injection molding with mold opening



Fig. S2 Mold cavity pressure curves recorded during high-pressure foam injection molding process with different cooling time: (a) 0 s, (b) 10 s, (c) 20 s, and (d) 30 s.



Fig. S3 SEM images of the foamed sample fabricated with cooling time of 180 s.



Fig. S4 Recorded cavity pressure variations at location C when opening injection mold with different speed.