Supporting Information

Hydrate Formation in Water-Laden Microcapsules for Temperature-Sensitive Release of Encapsulants

Juwoon Park,†,a Sang Seok Lee,†,b Young hoon Sohn,a Shin-Hyun Kim,*b and Yutaek Seoa

aDepartment of Naval Architecture and Ocean Engineering, Collage of Engineering, Seoul National University, 1, Gwanak-ro, Gwanak-gu, Seoul, 151 - 744, Korea

bDepartment of Chemical and Biomolecular Engineering (BK21+ program), Korea Advanced Institute of Science and Technology (KAIST), 291 Daehak-ro, Yuseong-gu, Daejeon 305-701, Republic of Korea

CORRESPONDING AUTHORS: Yutaek Seo and Shin-Hyun Kim

AUTHOR EMAIL ADDRESSES: Yutaek.seo@snu.ac.kr and kim.sh@kaist.ac.kr
Table of Contents

Fig. S1 SEM images of microcapsules taken in 1 day (a) and 2 weeks (b) during hydrate formation.

Fig. S2 Optical microscope images of microcapsules taken after dissociation, where two different rates of heating are used: (a) \( \Delta 19^\circ C/1h \) and (b) \( \Delta 19^\circ C/5\text{days} \). (c) Fraction of broken microcapsules in (a, b).

Movie S1 show generation of W/O/W double-emulsion drops by inner drop-triggered breakup in a glass capillary microfluidic device. This movie is taken by high speed camera (Motionscope, M3, Redlake) and played 4 times slower than real time.
S1. Fracturing of microcapsules during hydrate formation

Fig. S1 SEM images of microcapsules taken in 1 day (a) and 2 weeks (b) during hydrate formation.

S2. Influence of dissociation rate

Fig. S2 Optical microscope images of microcapsules taken after dissociation, where two different rates of heating are used: (a) Δ19°C/1h and (b) Δ19°C/5 days. (c) Fraction of broken microcapsules in (a, b).
S3. Description of supporting movie

**Movie S1** show generation of W/O/W double-emulsion drops by inner drop-triggered breakup in a glass capillary microfluidic device. This movie is taken by high speed camera (Motionscope, M3, Redlake) and played 4 times slower than real time.