

# Dual Monitoring of Cracking and Healing in Self-healing Coatings using Microcapsules Loaded with Two Fluorescent Dyes

Young Kyu Song <sup>1</sup>, Tae Hee Lee <sup>1,2</sup>, Jin Chul Kim <sup>1</sup>, Kyu Cheol Lee <sup>1</sup>, Sang Ho Lee <sup>1</sup> and Seung Man Noh<sup>1</sup>, and Young Il Park <sup>1,\*</sup>

<sup>1</sup> Research Center for Green Fine Chemicals, Korea Research Institute of Chemical Technology Ulsan 44412, Republic of Korea

<sup>2</sup> Department of Chemical Engineering, Ulsan National Institute of Science and Technology Ulsan 44919, Republic of Korea

\* Corresponding authors: Dr. Young Il Park (ypark@kRICT.re.kr)

Supplementary Materials:

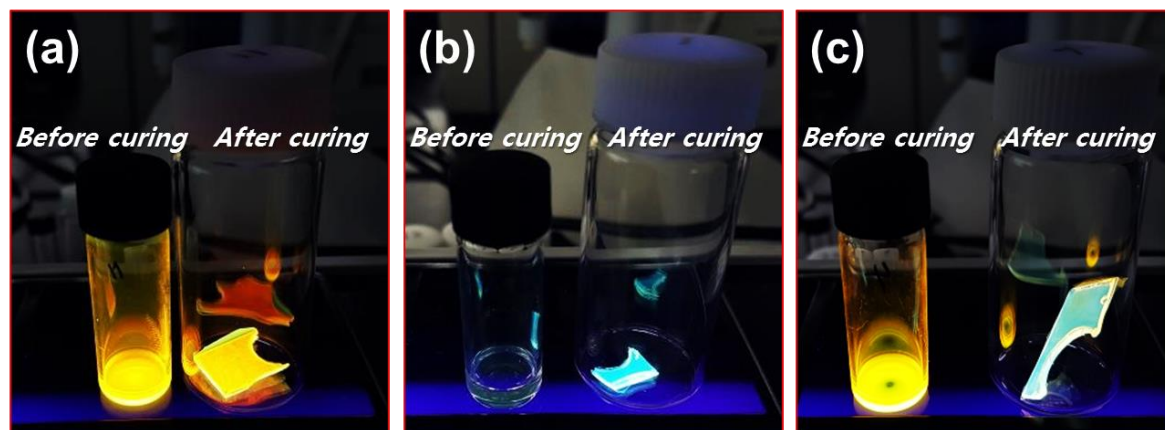


Figure 1. Photographs of (a) normal FL-dye (DCM) (b) AIE-dye (4-TPAE) and (c) mixture of DCM and 4-TPAE in healing agent before and after photo-curing.

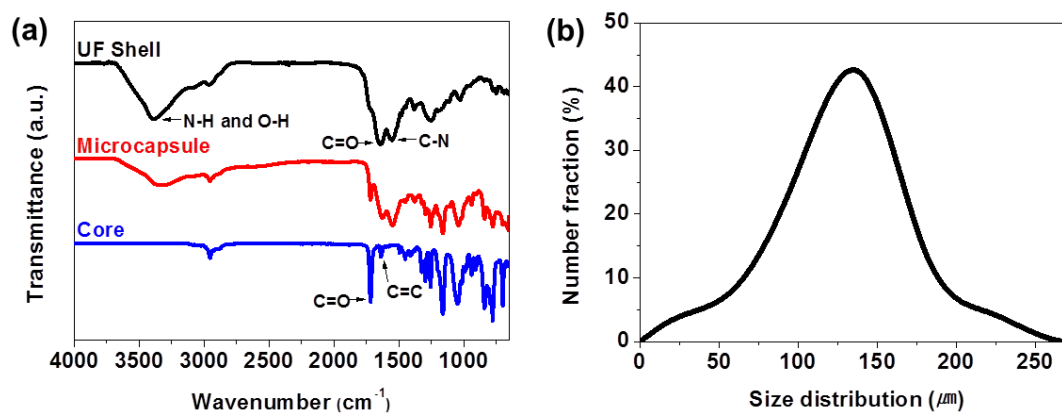


Figure S2. (a) Confirmation of microencapsulation via FT-IR spectral. (b) Size distribution of microcapsule.

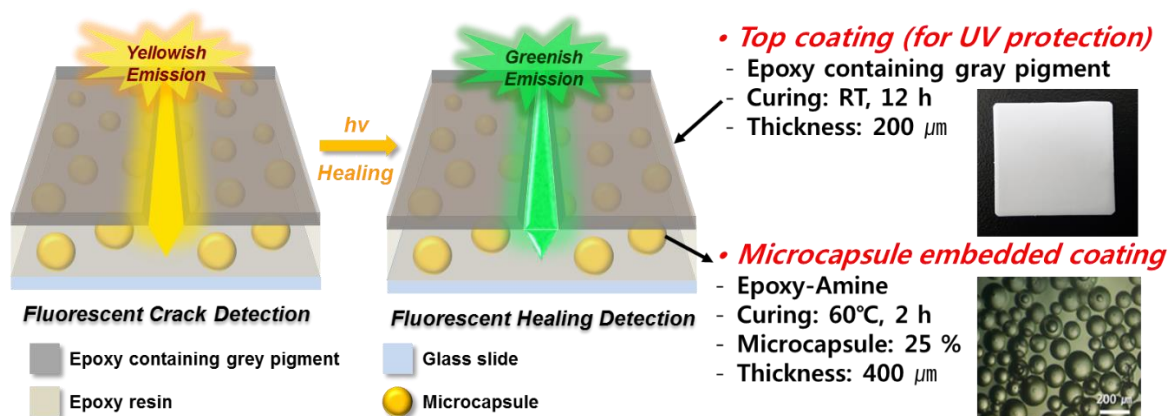


Figure S3. Schematic diagram of self-healing coating system with dye-loaded encapsulate and Figure of top-coating and microcapsule.