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## **Supporting Information**

## Surfactant-Free Microemulsion Composed of Isopentyl Acetate, *n*-Propanol, and Water

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Fig. S1. Molecular structures of (a) isopentyl acetate and (b) *n*-propanol.



Fig. S2. Scan-rate dependence of anodic peak currents in microemulsions at  $f_{IA}=0.050$  with (a)  $R_{P/W} = 8.0/2.0$  and (b)  $R_{P/W} = 7.0/3.0$ .



Fig. S3. IA dilution lines with different  $R_{P/W}$  values for cyclic voltammetry, fluorescence spectroscopy, and UV-visible spectroscopy mesurements



**Fig. S4.** Diffusion coefficient  $(D_p)$  of K<sub>3</sub>Fe(CN)<sub>6</sub>, in microemulsions as a function of  $f_{IA}$  at various  $R_{P/W}$ . The concentration of K<sub>3</sub>Fe(CN)<sub>6</sub> was 0.65 g·L<sup>-1</sup>.



Fig. S5. (A, B)  $D_p$  of K<sub>3</sub>Fe(CN)<sub>6</sub>, (C, D)  $I_{393}/I_{373}$  of pyrene, and (E, F)  $\lambda_{max}$  of MO in microemulsions at (A, C, E)  $R_{P/W} = 9/1$  and (B, D, F)  $R_{P/W} = 8.0/2.0$  as a function of  $f_{IA}$ .



Fig. S6. (A)  $D_p$  of K<sub>3</sub>Fe(CN)<sub>6</sub>, (B)  $I_{393}/I_{373}$  of pyrene, and (C)  $\lambda_{max}$  of MO in microemulsions at  $R_{P/W} = 7.0/3.0$  as a function of  $f_{IA}$ .



Fig. S7. Cryo-TEM images of samples (A) a, (B) b, (C) c, and (D) d. The samples a and b fall in the O/W subregion, and the samples c and d fall in the BC and W/O subregions, respectively, as marked in Fig. 1.