Supplementary Material (ESI) for *Soft Matter*

Supplementary Information

Colloidal Buckets Formed via Internal Phase Separation

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Gas adsorption analysis

Gas adsorption analysis was employed to measure the total surface area for colloidal buckets formed and hence, an equivalent particle diameter is obtained. By comparison of the gas adsorption diameter with the dynamic light scattering diameter, it was possible to deduce the morphology of particles formed. This is because colloidal buckets have a greater surface area than their corresponding spheres. The gas adsorption results are presented in Table S1.

Table S1: Comparison of gas adsorption and dynamic light scattering data

Sample	**Mass (g)**	**Specific surface area (m^2/g)**	***D(ads)* (nm)**	***D(dls)* (nm)**
1	0.1780	6.33	903	851
2	0.1927	16.73	342	871
3	0.2846	14.25	400	844

Differential scanning calorimetry data

Differential scanning calorimetry was used to verify the entrapment of hexadecane oil core in the colloidal buckets formed. This is further confirmed by the removal of the oil core by washing of particles with ethanol, whereby the presence of hole in the shell allowed easy oil removal. Table S2 presents a comparison on the measured "onset" melting temperatures for pre-washed particles and pure substances.

Table S2: "Onset" temperatures of pre-washed particles and pure substances

Item	Peak region	"Onset" temperature (°C)
Pure substances	Water n-Hexadecane	3.6 22.3
Temperature-dependent colloidal buckets	Water n-Hexadecane	0.9 19.8
Dye-induced colloidal buckets	Water	0.5

	n-Hexadecane	18.4