

Hollow microspheres with binary porous membranes from solid-stabilised emulsion templates.

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Supplementary Information

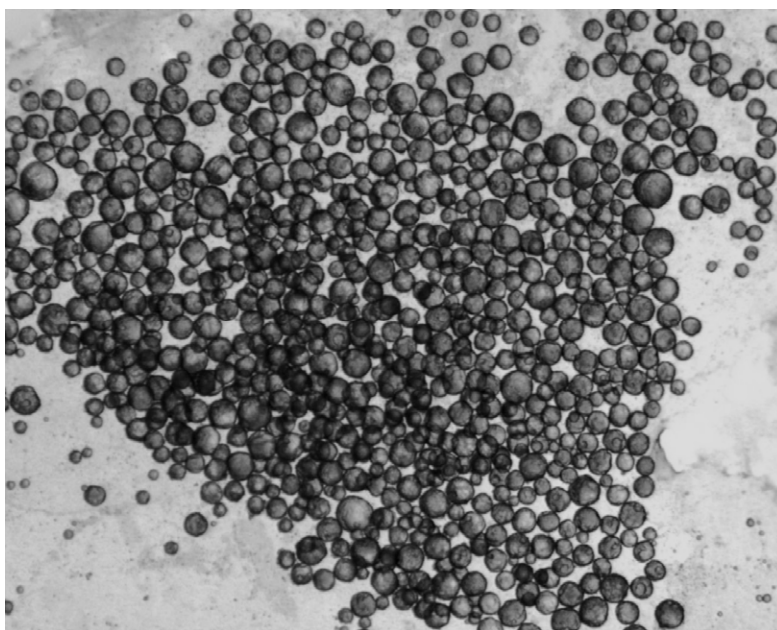


Figure S1: Optical microscopy image of a suspension of hollow microspheres prepared from an emulsion template in the presence of 160nm Silica nanoparticles. In this case the oil phase contained only 1wt% PMMA. As shown in the main article, these microspheres collapsed under the vacuum of the SEM chamber. However, as shown here, while in suspension in water, these microspheres were seen to hold their spherical structure.

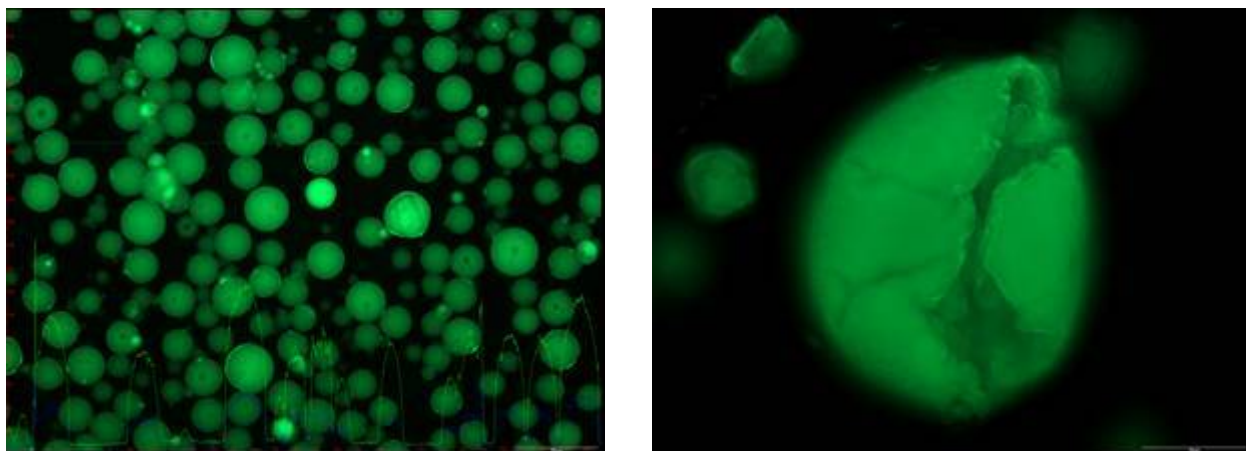


Figure S2: Fluorescence microscopy images of capsules obtained from emulsions containing Perylene (Sigma-Aldrich) in the dispersed phase and initially stabilised by 160nm Silica nanoparticles. The image on the left shows a definitive presence of the dye within the capsules after washing the capsule dispersion several times in Milli-Q water. The right image of a broken capsule suggests that the dye is mostly present within the polymeric membrane.



Figure S3: Digital image of 5 samples of gold nanoparticle suspensions to which different amounts of HNO₃ were added to induce rapid aggregation. An instantaneous dramatic colour change characteristic of aggregation in the suspension is noted as the volume of acid added is increased. In the last two samples, large aggregates were observable with the naked eye.

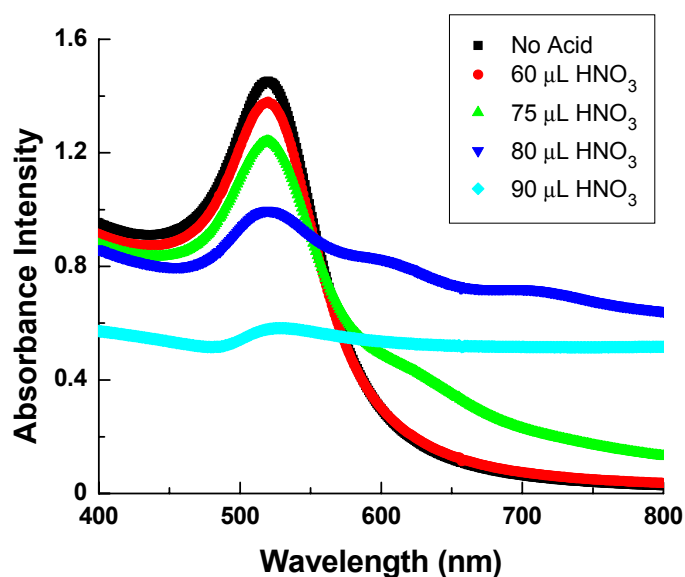


Figure S4: UV-Vis Absorbance spectra of the different samples showed in Fig. S2. Particle aggregation is characterised by the apparition of a shoulder between 600nm and 650nm and a decrease of the surface plasmon resonance (SPR) peak intensity as noticeable for a 75 μL volume of acid added. Above this value, the SPR peak disappears and the particles are completely aggregated as observable in Fig. S2.

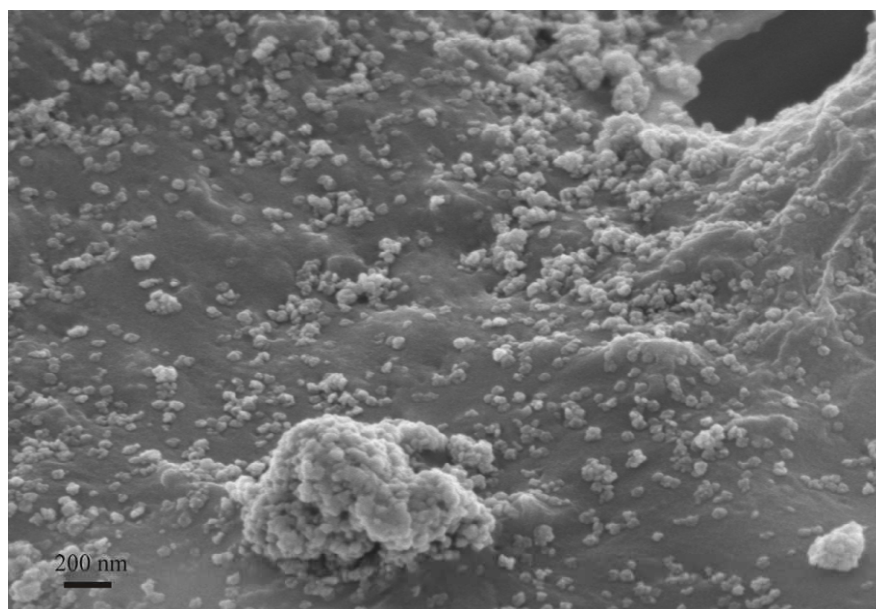


Figure S5: Example of SEM images of microspheres prepared in the presence of gold nanoparticles with 70uL volumes of acid added during homogenisation. The surface of the microsphere contains large gold nanoparticles aggregates adsorbed on the polymeric membrane surface.