Electronic Supplementary Material (ESI) for Soft Matter.

An example of load (red) and unload (blue) curves is shown in Fig. S1. In the contact regime, the two curves show similar slopes therefore indicating an elastic behaviour without adhesion of the capsule in this range of indentation. The black curve corresponds to a fit of the loading curve which has been obtained using the Hertz model of contact between two spheres according to the following equation and from which the young modulus is extracted.

$$F = \frac{4}{3}\frac{\tilde{R}^{1/2}\delta^{3/2}}{\left(1-\nu_t^2\right)/E_t + \left(1-\nu_c^2\right)/E_c}$$

with F the force applied by the tip on the capsule, E_t=150 GPa and E the Young moduli of the tip and capsule and $\nu_t = \nu$ =0.5 the Poisson ratios of the tip and capsule respectively. $\tilde{R} = (1/R + 1/R_t)^{-1}$ with R and R_t the capsule and tip radii respectively, and δ the indentation.

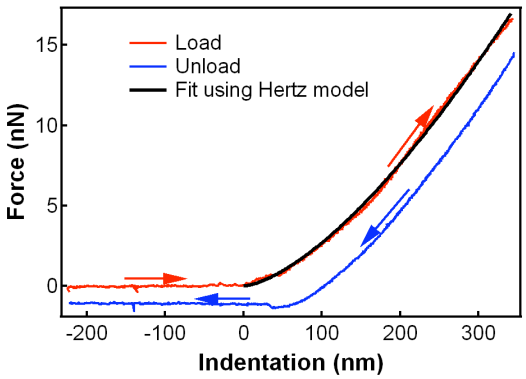

Figure S1 Indentation measurement obtained on a capsule. The black curve corresponds to the fit of the loading curve obtained using the hertz model of two spheres in contact.