

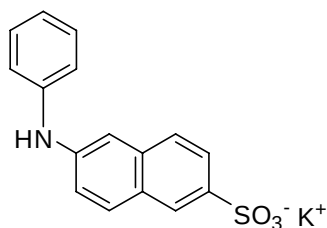
Supporting Information

Enhanced Stabilization of Vesicles by Compressed CO₂

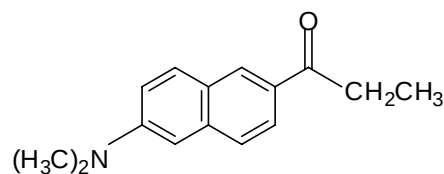
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1. Structures TNS and prodan



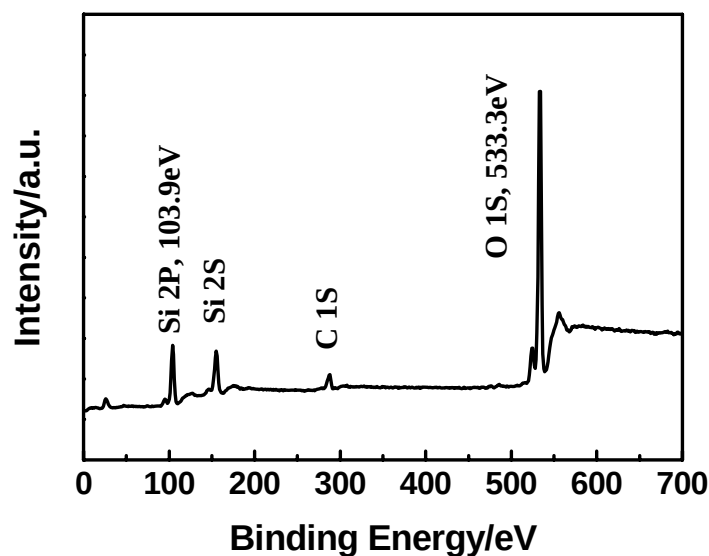
Scheme S1. Chemical structure of fluorescence probe 2-(*p*-toluidino)naphthalene- 6-sulfonate (TNS).



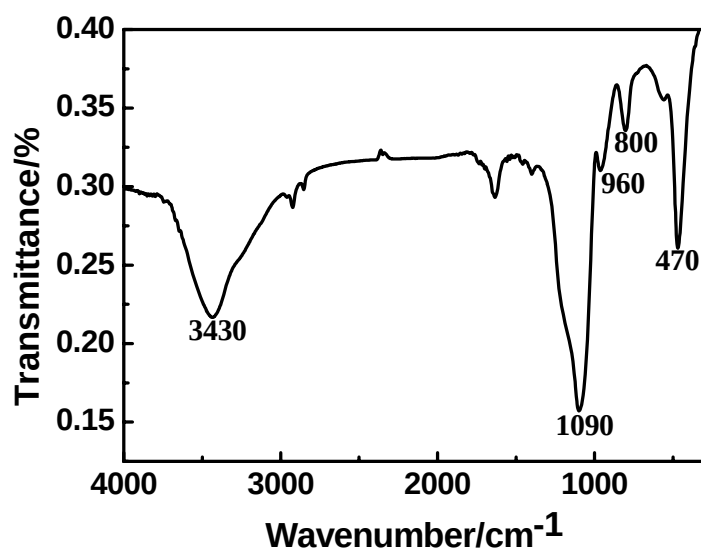
Scheme S2. Chemical structure of the fluorescence probe 6-propionyl-2- (dimethylamino)-naphthalene (prodan).

2. Results

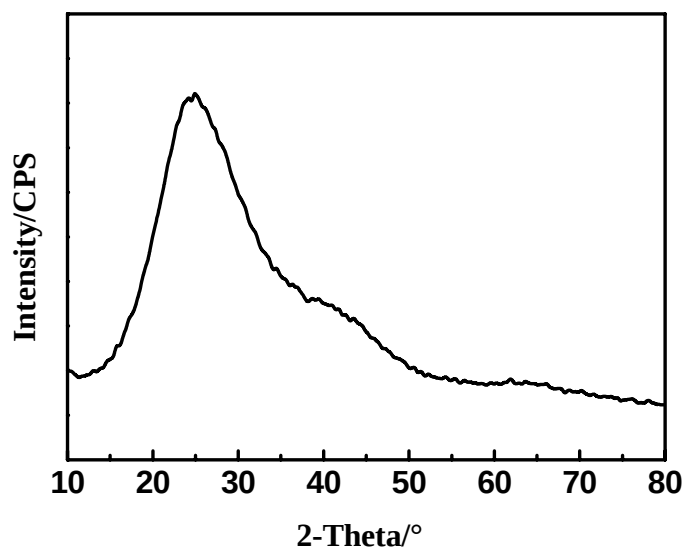
Figure S1 (a) gives the XPS spectrum of the sample prepared, which shows the presence of Si and O elements. The resulting Si 2p and O 1s spectra show the peaks at binding energy of 103.9 eV and 533.3 eV, respectively, which are in agreement with the accepted binding energy values for SiO₂. Figures S1 (b) and S1 (c) show the FT-IR spectrum and XRD pattern of the obtained particles, respectively. In the IR spectrum, the bands at 3430 cm⁻¹, 1090 cm⁻¹, 960 cm⁻¹, 800 cm⁻¹, and 470 cm⁻¹ can be attributed to the stretching vibration of –OH, the asymmetric stretching vibrational mode of Si–O–Si, stretching vibration of Si–OH, symmetric stretching of bulk Si–O–Si, and bending modes of bulk Si–O–Si, respectively. The XRD pattern of the particles showed a broad peak at $2\theta = 24^\circ$, indicating that the silica was amorphous.^{S1}



(a)



(b)



(c)

Figure S1. The characterizations of the silica particles prepared in the DTAB/SDS aqueous solution at 6.02 MPa: (a) XPS spectrum; (b) IR spectrum; (c) XRD pattern.

Table S1. Deconvolution parameters of the Gaussian components of the TNS fluorescence emission spectra at different pressures (Ai is area percentage of band i).

pressure (MPa)	$\lambda_{\max}$ (nm)	$I_{\max}$ (nm)	λ_1 (nm)	$A1$ %	λ_2 (nm)	$A2$ %	λ_3 (nm)	$A3$ %	r^2
0	435.5	68.6	420.9	19.33	445.8	54.77	475.6	25.9	0.9998
4.0	437.0	100.7	421.8	20.39	445.5	46.11	476.1	33.5	0.9997
6.0	437.5	104.6	422.1	27.89	445.3	36.3	476.4	35.8	0.9997
7.1	438.0	122	422.7	29.07	444.7	35.02	476.8	35.9	0.9994

Table S2. Deconvolution parameters of the Gaussian components of prodan fluorescence emission spectra at different pressures (Bi is area percentage of band i).

pressure (MPa)	$\lambda_{\max}$ (nm)	$I_{\max}$ (nm)	λ_1 (nm)	$B1$ %	λ_2 (nm)	$B2$ %	λ_3 (nm)	$B3$ %	r^2
0	488.5	25.28	470.2	41.76	511.3	57.13	574.4	1.11	0.9991
4.0	489.3	39.95	470.8	53.47	510.8	45.95	575.3	0.58	0.9993
6.0	490.6	51.9	471.1	55.6	510.5	44.33	576.6	0.07	0.9992
7.2	491.0	53.1	471.7	58.38	510.2	41.59	577.5	0.03	0.9991

Reference

(S1) (a) Mohamed, M. M.; Salama, T. M.; Yamaguchi, T. *Colloids Surf. A.* **2002**, *207*, 25–32. (b) Cheng, P.; Zheng, M. P.; Jin, Y. P. *Mater. Lett.* **2003**, *57*, 2989–2994.