

Supporting Information

1. Synthesis of 2-(3-(triethoxysilyl)propylaminocarbonylamino)-6-methyl-4[1H]pyrimidinone (SupraTES)

3.5g (28mmol) of 6-methyl isocytosine(2-amino-4-hydroxy-6-methyl-pyrimidine) was dissolved in 20mL of DMF. 7.9mL (56mmol) of triethylamine was added to the flask and stirred for a while. Then 13.8mL (56mmol) of (3-triethoxysilyl)propyl isocyanate was added into the reaction solution and stirred at 100°C for 20h. After cooling to room temperature, the product was vacuum concentrated and was purified by column chromatography using ethyl acetate as an eluent. Then the solvent was removed by the rotary evaporator and finally dried under reduced pressure for 24h.

¹H NMR(300MHz, CDCl₃, ppm) δ: 13(s, 1H, -NH-C(CH₃)=), 12(s, 1H, -NH-C=N-), 10(s, 1H, -CH₂NH-CO-, -CHNH-CO-NH-), 5.8(s, 1H, =CH-C(=O)N=), 3.86-3.79(q, 2H, -Si-O-CH₂CH₃), 3.26-3.24(q, 2H, -NHCH₂CH₂CH₂-), 2.2(s, 3H, CH₃-C(=)NH-), 1.26-1.2(t, 3H, -Si-O-CH₂CH₃), 0.71-0.65(t, 3H, -SiCH₂CH₂CH₂-)

FT-IR (KBr, cm⁻¹) v: 3216, 3150, 3037, 2977, 2934, 2884, 1707, 1660, 1080cm⁻¹

2. Sol-gel coating

The molar composition of the starting solution was supraTES/ethyl acetate/H₂O/PDMS/HCl =1:3.5:1:0.5:0.002. After stirring the mixture for 12h, the phase separated sol solution was cast on glass substrate to form a phase separated structure having a superhydrophobic surface property. As mentioned in ref. 8, this kind of material formed by sol-gel process is stable under about 400°C. Also there may be no rearrangement of molecules in an atmosphere saturated with water vapor because after sol-gel process, the structure of this material remains intact. Further, the outer surface is covered with a hydrophobic PDMS which has a high thermal stability.

3. Characterizations

Scanning electron microscopy (Hitachi 4200) was used for the observation of the phase separated structure of supraTES film. The inner structure of supraTES gel surface was characterized by transmission electron microscopy (Hitachi, H-7600), FT-IR (BIO-RAD, FTS 375C) with KBr plate. The superhydrophobicity was confirmed by water contact angle measurement using 3mm water droplet. The shape of water droplet was not

changed after 30min of exposure to ambient environment.

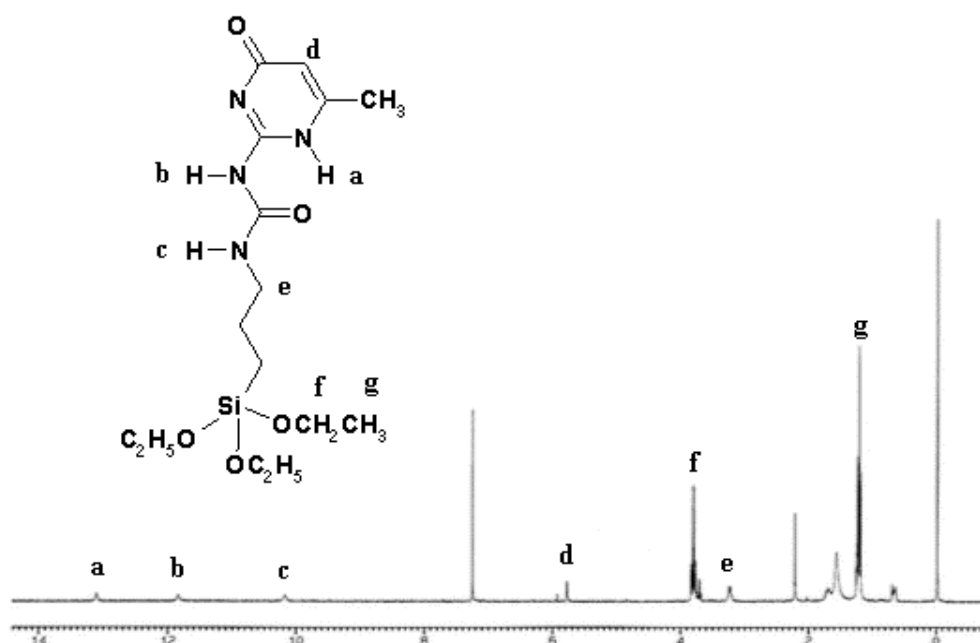


Figure S1. ^1H NMR spectra of supraTES in CDCl_3 .