A facile one step synthesis of stable suspended superhydrophobic silica NPs in the aqueous solution by using of anionic surfactant

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Abstract

The aim of this work is one step synthesis of suspended hydrophobic silica particles in aqueous solution. Four silane coupling agent including of Decyl (trimthoxy) silane, Octyl (trimethoxy) silane, butyl (trimethoxy) silane and vinyl (trimethoxy) silane were used as precursor of silica particles. It was seen silica particle only synthesis by using of vinyl (trimethoxy) silane with super-hydrophobic property which was named VA-SiO_2. But suspension stability of synthesized hydrophobic silica in aqueous solution is low due to aggregation, large particle size, gravity force and hydrophobicity of silica particle. To synthesis of stable suspended hydrophobic silica in the aqueous solution, ammonium lauryl ether sulphate (ALES) was used during synthesis of VA-SiO_2. Also the effect of surfactant on zeta potential, particle size, suspension stability and water contact angle of VA-SiO_2 was investigated.

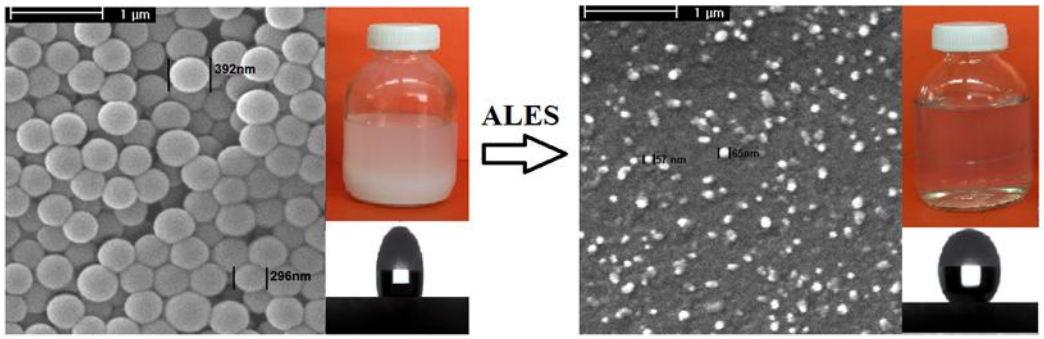


Figure 1. Effect of ALES on Particle size, suspension stability and water contact angle

Keyword: superhydrophobic silica; vinyl (trimethoxy) silane; anionic surfactant; contact angle

References

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