

Constants and Symbols

γ_{SG} - surface tension coefficient of solid-gas interface,

γ_{SL} - coefficient of solid-liquid interface

γ_{LG} - coefficient of liquid-gas interface.

θ_W - Wenzel's Contact Angle on the rough surface,

r - The actual wetted area divided by the projected wetted area of the surface,

θ_Y - Young's Contact angle

θ_{CB} - Cassie-Baxter Contact angle on the rough surface,

r_f - actual wetted area divided by the projected wetted area of the surface,

f - is the fraction of the projected area of the surface that is wetted by the liquid

ΔG – Free energy associated with mixing non-polar molecules with water,

ΔS - entropy changes in the system

ΔH – enthalpy changes in the system

t = Thickness of the film

w = Weight of the film on the substrate (Weight of the substrate after coating – Weight of the substrate before coating)

ρ – Density of the film

A – Area of the substrate used

A_n – Hamaker's Constant

D – intermolecular distance between the molecules.

Abbreviations

CAH - contact angle hysteresis

CA – Contact Angle

TEOS – Tetraethoxysilane

MTMS - Methyltrimethoxysilane

PDMS – Polydimethoxysilane

PVDF – Polyvinylidene fluoride

PMMA - Polymethylmethacrylate

PS - Polystyrene

HCl - Hydrochloric acid

DMF – Dimethylformamide

FTIR - Fourier Transform Infra-red Spectroscopy

FESEM - Field Emission Scanning Electron Microscope

EDX – Energy Dispersive X-ray spectroscopy