

ABSTRACT

Stains on medical apparatus and clothes, dirt on vehicles and equipment, water droplets clogging on windshields, etc. created a motivation for the present work along with a lot of interest shown for superhydrophobic coatings both from researchers and industries for its self-cleaning, water repellency and optical transparency. Study on the literature available indicates decades of work has been done and are continuing on inorganic coatings compared to the organic coatings, hence organic and hybrid coatings are being of more interest. A lot of work has been done to achieve superhydrophobicity with the help of fluorinating agents realizing their ability to create a low surface energy.

This research aims at achieving a superhydrophobic surface of the organic polymer by fabricating it on to a glass substrate with the help of basic techniques like solution drop casting and spin coating with a special concern of having a fluorine-free coating. The mechanism for achieving this is based on the phase separation of the polymer blends and selective solvent technique.

The coatings are characterized in order to demonstrate the surface composition and roughness behavior. WCA is performed to discuss the fulfillment of the coating being superhydrophobic while FTIR demonstrating the presence of required polymer only. Optical microscopy images and SEM images are discussed to understand the surface morphology taking place on the variation of parameters like coating method, their coating parameters, duration of selective solvent treatment, etc.