

Abstract Submitted
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Salinity Effects on Superhydrophobic Coatings¹ F.O. OCHANDA, M.A. SAMAHA, H. VAHEDI TAFRESHI, G.C. TEPPER, M. GAD-EL-HAK, Virginia Commonwealth University — Experiments are carried out to investigate the effect of NaCl concentrations on degree of hydrophobicity and longevity of polystyrene fibrous coating. A rheological study using salt water as a test fluid is performed to observe the generated drag reduction from the coating with increasing salt concentration compared to deionized water. Contact-angle measurements of droplets of solutions on the surface are used to validate the results from the rheometer. In situ noninvasive optical spectroscopy system is used to measure the time-dependent loss of entrapped air within the submerged fibrous coating. water for comparison. The superhydrophobic coating used is made of polystyrene fibers that are deposited using DC-biased AC-electrospinning. Such fabrication methods are far less expensive than ordered-microstructured fabrications, bringing the technology closer to large-scale submerged bodies such as submarines and ships. The present study sheds some light on how properties of a superhydrophobic coating could be influenced by water salinity.

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