

Abstract Submitted
for the SES16 Meeting of
The American Physical Society

Characterization of nano-level coefficient of friction of oleophobic and superhydrophobic coatings on 316L SS in harsh conditions
HAMZA SHAMS, DHA Suffa University (DSU), SAJID SALEEM, KANZA BASIT, SALMAN NISAR, National University of Sciences and Technology (NUST), MATDRS COLLABORATION — 316L SS is widely used in marine applications due to its high resistance to corrosion. This study emphasizes on investigating the commercially available superhydrophobic / oleophobic coatings applied over 316L SS and subsequently finding out the nano-level coefficient of friction. Samples of 316L SS were prepared and coated with three oleophobic coatings. After coating, one set of samples were tested in sand-storm conditions and another set in sea-breeze conditions. Lateral Force Microscopy (LFM) has been used to determine the coefficient of friction at nano-level. The coefficient of friction is associated with the amount of wear. The coefficient of friction is obtained for three states; before coating, after coating and after sand-storm / sea-breeze condition. From the comparison of results, the performance of the coating has been evaluated. The coefficient of friction changed drastically when the coated samples were exposed to sand-storm conditions whereas very little difference was observed for sea-breeze condition. Since oleophobic coating prevents a material from corrosion as well as erosion, it was seen that the coating was damaged after a considerable amount of time and it protected the base substrate from being exposed to the environment.

Hamza Shams
DHA Suffa University (DSU)

Date submitted: 02 Nov 2016

Electronic form version 1.4