

clusters, each surface coating. The roughness (R_a) and fractal dimension (D) measurements ranged from 9.42 to 18.63 and 2.55 to 2.32, respectively. The relationship between the roughness and fractal dimension is shown 0.4643 by Spearman ranks (rs). The $R^2 = 81.16\%$ coefficient indicated that the stock performance moves relatively in line with the index, which was considered acceptable for the model limitations, the experimental errors, and the assumption that the fractal dimension itself can be considered a stochastic variable value on its spatial position. The linear regression indicated moderate variables independence; however, the negative tendency will predict possible interaction. This behavior is according to the found in factorial design 2k analysis, assuming does not exist strong relation significative between type material. However, the interaction of responses variables has interaction since the null hypothesis is accepted considering a reliability level of 95% and significance error of 5%. The fractal dimension measurements by the optical method can be a great potential to evaluate surface roughness complementary in applications such as laboratories even, in scale industrial, thus that result of statistical treatment shown high accuracy in the measurements.

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