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Inhibition of Corrosion of mild steel in 2M HCl by Determination of optimal experimental parameters using Factorial Design- A preliminary study

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Abstract: A preliminary study to investigate the effect of Pongamia minnata seed oil on the erosion inhibition of MS by weight loss method. This was increased by the applying 2³ factorial design. The communicating possessions of concentration, reaction time, and temperature on inhibition were investigated; the input factors and output response were also optimized. Maximum inhibition efficiency of 94.27 % was achieved at low temperature of 27 °C, reaction time of 4 days and inhibition concentration of 10 %v/v. A combination of statistical analysis, the Pareto chart and normal possibility chart and the main effects and the interaction effects has been employed to obtain an in depth understanding of the corrosion variables. Analysis of variance on the corrosion constraint shows the fitness of this model. It can be determined that factorial design is adequately relevant in the optimization of process variables and the inhibitor Karanj (Pongmia pinnata) seed oil, adequately reserved the erosion of MS(mild steel) at the given surroundings of the investigation.

KeyWords :Factorial, Karanj.

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