

Interaction relationship analysis of surface roughness on aluminium etched wafer using RIE

Abstract

This paper presents the interaction relationships between Tetrafluoromethane (CF_4) gas, Oxygen (O_2) gas, and RF power in response to the surface roughness of an Aluminium deposited wafer after being etched using Reactive Ion Etching (RIE). The investigation was done using the three factors full factorial design of experiment (DOE). Analysis was done qualitatively by plotting the main interaction plots. The results suggest that strong interactions are present between CF_4 and RF power, CF_4 and O_2 , and also O_2 and RF power due to the intersection of the graphs. This implies that all three factors have interaction between each other towards the surface roughness on the deposited Aluminium after RIE.

Keywords; Aluminum, Design of Experiment (DOE), Reactive Ion Etching (RIE), Surface Roughness