Applied Mechanics and Materials, vol.487, 2014, pages 195-198

Main effects study on plasma etched aluminium metallization

Abstract

Main effects contributing to the quality of surface roughness on an etched aluminium metallization wafer using Reactive Ion Etching (RIE) was studied. A total of three controllable process variables, with eight sets of experiments were scrutinized using an orderly designed design of experiment (DOE). The three variables in the investigation are composed of CF_4 gas, composed of O_2 gas and RF power while time is constant. The estimate of effect calculated for composition of CF_4 gas, composition of O_2 gas and RF power are-2.205, -0.975, and-0.525 respectively. All factors gave negative effects. This implies that the surface roughness increases when the content of CF_4, O_2, and RF power is lower. The results suggest that the composition of CF_4 gaseous as the most influential factor as its main effects plot has the steepest slope followed by oxygen and RF power.

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