

Electrodeposition of Copper onto Dendrimer Modified Silicon Oxide

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Electrochemical deposition of metals onto silicon substrates has been studied for several reasons, including circuitry interconnects, magnetic thin films, and Schottky junctions. Copper is a technologically important metal desired for its conductive properties. In order to adherently electrodeposit copper onto silicon, the native oxide must be etched to produce an H-terminated surface. In this study, the adherent electrodeposition of copper onto Si wafers with their native oxide layer modified by amine terminated PAMAM dendrimer monolayers was demonstrated. Dendrimer modified substrates were placed in a standard CuSO₄ bath, and copper deposition was carried out. XPS, optical microscopy, and SEM analyses confirm the presence of copper and degree of film uniformity. The role of the dendrimer as an adhesion promoter was investigated.