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Surface Modification of Polyimide Film by Ion Beam and Coupling Reaction for Adhesion Improvement

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Polyimides(PI) are widely used in the microelectronics packaging industry especially in printed circuit board(PCB) because of its superior mechanical properties, high temperature resistance, solvent resistance and low dielectric constant. PI is frequently used as a composite with copper metal, for example in printed circuit boards. In the composite with copper metal which is deposited on the PI film surfaces by sputtering techniques, PI film surfaces must be modified due to its poor adhesion with copper metal. Its surface should be modified by ion-beam treatment to improve adhesion properties due to poor adhesion with copper.

In this study, we investigated the surface modification by a combination of ion beam treatment and coupling agent to improve the adhesion between PI film and copper. Fig.1. Showed morphology of modified PI film surface by ion beam and coupling agent treatment. The detailed characterization and adhesion to copper of the modified PI film will be discussed.

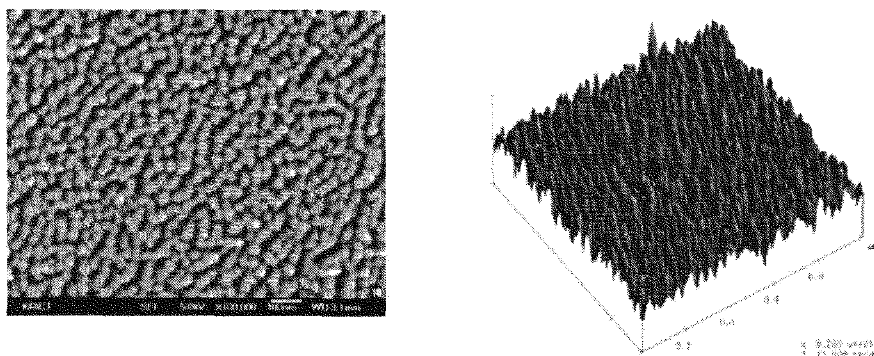

Figure 1. SEM and AFM image – Modified polyimide film by ion beam and coupling agent

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