

Evaluation of Mechanical Properties and Adhesion of Various Conformal Coatings Used in Electronic Packaging

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Abstract

Conformal coatings can be used to mitigate tin whisker growth on tin-rich surfaces, for which its mechanical properties and adhesion will play a crucial role. In this study, various types of conformal coatings (acrylic, silicone, polyurethane, and polyurethane acrylate) were investigated under various curing conditions to measure mechanical properties and coating adhesion to tin surface. FT-IR, Raman spectroscopy and DSC were used to examine the degree of curing of the coating. Mechanical properties were evaluated by universal testing machine and micro-hardness testing. Furthermore, adhesion of the coating was determined by a cross-cut tape peeling test.