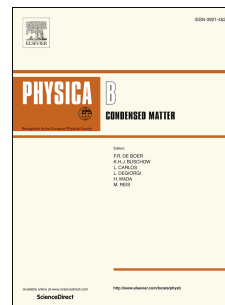


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Ultra-low Temperature Curable Nano-silver Conductive Adhesive for Piezoelectric Composite Material

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Abstract: Limited by the low thermal resistance of composite material, ultra-low temperature curable conductive silver adhesive with curing temperature less than 100 °C needed urgently for the surface conduction treatment of piezoelectric composite material. An ultra-low temperature curable nano-silver conductive adhesive with high adhesion strength for the applications of piezoelectric composite material was investigated. The crystal structure of cured adhesive, SEM/EDS analysis, thermal analysis, adhesive properties and conductive properties of different content of nano-silver filler or micron-silver doping samples were studied. The results show that with 60wt.% nano-silver filler the ultra-low temperature curable conductive silver adhesive had the relatively good conductivity as volume resistivity of $2.37 \times 10^{-4} \Omega \cdot \text{cm}$, and good adhesion strength of 5.13MPa. Minor micron-doping (below 15wt.%) could improve conductivity, but would decrease other properties. The ultra-low temperature curable nano-silver conductive adhesive could successfully applied to piezoelectric composite material.

Keywords: Piezoelectric Composite Material; Conductive Adhesive; Nano-silver; Ultra-low Temperature Curable

Introduction

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