Effect of Intermetallic Phases on the Performance of Tin-Plated Copper Connections and Conductors

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***Abstract*: The widespread use of tin in a variety of electrical and electronic applications prompted numerous studies dealing with the problem of interdiffusion and formation of intermetallic phases in copper-tin system. It was clearly shown that intermetallic phases are controlling factors in determining the reliability of copper-tin system since these can lead to degradation of electrical, chemical and mechanical properties of both the joint and the copper conductor. In this work the effect of intermetallic phases on electrical and mechanical (microhardness) properties of tin-plated copper conductors and connectors was investigated. It was shown that the presence of intermetallic phases adversely affects these properties of tin-plated conductors and connectors as clearly demonstrated in the case of flexible tin-plated copper connectors (braids, jumpers) used in different types of electrical applications.**