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Ionic equilibrium of copper in the activating solution based on palladium(II) and tin(II)

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Abstract

At the activation of surface of the through-holes clad dielectrics in the manufacture of printed circuit boards along with the basic reduction reaction of palladium(II) proceeds the reduction reaction of copper oxide on the surface of the copper foil. As a result of these processes in the combined activating solution contains ions Pd^{2+}, Sn^{2+}, Sn^{4+}, Cu^{2+}, Cu^{+}.

The presence in the solution of a large amount of free chlorine ions allows to make presumably the suggestion that in a combined activating solution the ions exist in the form of chloride complexes. In the framework of this paper the detailed analysis of ionic forms of copper(I) and copper(II) was conducted. The concentration of each ionic form depending on the concentration of free chloride ions was quantitatively determined.