

Investigation the influence of surface pretreatment for environmentally friendly copper metallization on ABS

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Abstract:

In recent years, the specific demand for development of selective, adaptable and low cost methods has been one of the key factors for further progress in electroless deposition research. By itself, it is a rather complicated process.

Electroless copper metallization of dielectric (acrylonitrile–butadiene–styrene (ABS)) is generally considered possible if a catalyst allowing the metal deposition reaction initiation presents on the surface to be coated. To obtained coatings with good appearance and adhesion the pre-treatment is very important. The aim of the presented results is to study the influence of pre-treatment (degreasing, etching, reduction and activation) for the obtaining of thin copper layers from an environmentally electrolyte that does not contain toxic reducer (formaldehyde).

The morphology, structure and the surface chemistry of the obtained copper layers was investigated by scanning electron microscopy (SEM), X-ray diffraction (XRD), X-ray photoelectron spectroscopy (XPS) and “Perthometer C 3A” apparatuses.

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