

## Ni Coating Characteristics of High K Capacitor Ceramic Powders

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**Abstract** : Metal coating on ceramic powder has long been attracting interest for various applications such as superconductors where the brittle nature of high temperature ceramic superconductor was complemented by silver coating and metaloceramics where mechanical property improvement was achieved via electroless plating. More recently it has become of great interest in embedded passive device applications since metal coating on ceramic particles may result in the enhancement of the dielectric properties of ceramic-polymer composite capacitors. In our study, nickel ion-containing solution was used for coating commercial capacitor-grade BaTiO<sub>3</sub> powder. After filtering process, the powder was dried and heat-treated in 5% forming gas at 900°C. XRD and TEM were utilized for the observation of crystallization behavior and morphology of the particles. It was found that the nickel coating characteristics were strongly dependent on the several parameters and processing variables, such as starting BaTiO<sub>3</sub> particle size, nickel source, solution chemistry, coating temperature and time. In this paper, the effects of these variables on the coating characteristics will be presented in some detail.

**Key Words** : metallized ceramic, Ni coating, BaTiO<sub>3</sub>;