

Preliminary characteristic of electrical non-linearity Co doped CMO-ZnO based varistor ceramic

ABSTRACT

Zinc oxide based varistor are widely used as circuit protective devices by literally absorbs these dangerous surge and spikes or grounding this unwanted magnitudes. In this research, zinc oxide is added with 20 mol% calcium manganite (CaMnO_3) as an additive and Cobalt oxide (CoO) as doping material. Citrate-gel method is used as fabrication method compared to conventional solid-state method. This compound ($\text{ZnO-CaMnO}_3\text{-CoO}$) undergoes pre-sintering at 500°C for 2 hours. In the sintering process, sintering temperature at 1300°C , while the sintering time are setting at 1.5 hours. X-ray diffraction (XRD) patterns shows the components and phases of the compounds. The change of functional group was observed by Furrier transform infra-red (FTIR). I-V characteristic shows the value of nonlinear coefficient in the range of 1.0-2.0.

Keyword: Citrate-gel; Varistor; Zinc oxide