

Effect of dendrite zinc oxide as a filler on the properties of colorless polyimide films

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The colorless polyimide film with dendrite zinc oxide as a filler was synthesized. The morphology of dendrite zinc oxide was investigated using scanning electron microscopy (SEM). The morphology of dendrite zinc oxide had a hollow cylindrical shape. This created free volume in the polymer matrix, which allowed to lower the dielectric constant of the polyimide/dendrite zinc oxide composite film. Addition of 3% dendrite zinc oxide in polyimide film maintained the total transmittance of ~90%, yellow index of 0.25, and the dielectric constant as low as ~2.05. The thermal properties and optical properties of polyimide/dendrite zinc oxide composite films were also investigated by differential scanning calorimetric (DSC), thermal gravimetric analysis (TGA) and haze meter.