

The optical constant and nonlinear properties of mixture of aluminum oxide-epoxy resin film

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Abstract

A film of mixture of aluminum oxide-epoxy resin is prepared by casting method on a glass substrate. The film important parameters viz., the linear and nonlinear refractive index, extinction coefficient EC , linear and nonlinear optical third-order susceptibilities, optical and electrical conductivities, etc., have been obtained via the measurements of absorption and transmission spectra in the 375-900 nm wavelength range, mathematical equations and the Wemple and DiDomenico model. The nonlinear refractive index NRI is obtained once more based on the Z-scan method. $ANRI$ of $4 \times 10^{-9} \text{ cm}^2/\text{W}$ is obtained.

Key words: Aluminum oxide-epoxy resin film, Optical constants, Nonlinear refractive index, Z-scan.

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