

## عنوان مقاله:

Thermal and electro-optic properties of graphene oxide-doped hexylcyanobiphenyl liquid crystal

## محل انتشار:

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## خلاصه مقاله:

Abstract Hexylcyanobiphenyl liquid crystal was doped with graphene oxide at ratios %0.25GO, %0.5GO, %1GO and %2GO, and the change in physical properties of pristine and the doped liquid crystals has been investigated. The phase transitions of prepared samples were studied by differential scanning calorimeter and polarized optical microscopy. The differential scanning calorimeter and polarized optical microscopy results are in good agreement when examining the nematic-isotropic liquid phase transition temperatures of the hexylcyanobiphenyl. The liquid crystal texture images obtained with polarized optical microscopy reveals that thermal stability of sample changed with graphene oxide concentration, i.e., increased with graphene oxide concentration. Impedance, capacitance, conductivity and real and imaginary dielectric constants of the pure and doped liquid crystals were obtained depending on frequency and voltage at the room temperature by using impedance analyzer. These electrical properties of the pure and the graphene oxide-doped samples showed an increase with increasing the graphene oxide ratio. The voltage-dependent light transmittance experiment revealed that threshold voltage of LC cells decreased .for %0.25GO- and % 1GO-dispersed samples, but it was increased at %0.5GO- and %2GO-dispersed samples

## کلمات کلیدی:

Liquid crystal, Graphene oxide, Thermal and electro, optic properties, DSC, POM, Dielectric

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