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Effect of 1,4-dihydroxyanthraquinone dye on the dispersion parameters of poly(methyl methacrylate) polymer composites

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ABSTRACT

The casting approach was used to make films of poly methyl-methacrylate (PMMA) doped with varied weight percentages of 1,4-dihydroxyanthraquinone dye. These films were made on glass substrates at room temperature. Two different methods, including elemental analysis, FT-IR, and UV-Visible spectroscopies, were used in order to characterize the films that were created. The spectrum properties and the dispersion parameters of the dye-doped polymers have been examined with the help of spectrophotometric measurements. These experiments were performed in the wavelength range of (300-900) nm. According to the Wemple-Didomenico single oscillator model, many significant optical dispersion characteristics of the spectrum absorption have been identified. These include the dispersion energy, E_d the oscillator energy, E_o the wavelength of the single oscillator, λ_o and the average value of oscillator strength, S_0. It was discovered that dye doping had an influence on each of these different factors.

***Keywords*:** PMMA, Dispersion parameters, oscillator strength, Spectroscopic measurements

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