

عنوان مقاله:

Effect of Component Ratio on Optical Properties of Nanocomposites of Ni-Fe Spinels Dispersed in Silica Matrix

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خلاصه مقاله:

In this paper, the effect of component ratio on optical attributes of nanocomposites of Ni-Fe spinels dispersed in silica matrix is investigated. In this way, various percentages of the nano-sized magnetic particles, i.e., 10%, 20%, 40% and 50%, are embedded in amorphous component. Then, the reflectance spectra of nanocomposites are measured over the visible spectrum to calculate the colorimetric properties of nanocomposites. Results show that by increasing molar ratio of Ni-Fe spinel nanoparticles in amorphous component, the lightness properties of nanocomposites decrease while the chroma attribute increases. It means that dispersion of more amounts of nano-sized magnetic crystals in amorphous network leads to darker and more saturated nanocomposites. The reflectance spectra of nanocomposites in different component ratios prove the colorimetric achievements. On the other hand, based on the achieved hue angles, it seems that increasing of Ni-Fe spinel nanoparticles component does not lead to significant variation in hue attributes of nanocomposites of Ni-Fe spinels.

کلمات کلیدی:

Nanocomposites, Ni-Fe spinels, Silica, Reflectance spectra, Colorimetric attribute

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