

Influence of ethylene glycol and polyethylene glycol on magnetic properties of iron oxide nanocrystals

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The controlled design and synthesis of iron oxide nanocrystals have recently attracted much interest for both basic scientific research and practical technological applications. Hence, formulating simple and novel surfactant-free methods to synthesize different Fe₃O₄ particles with different magnetic properties is important. In this study, we investigate a simple hydrothermal method to synthesize magnetic and nonmagnetic Fe₃O₄ nanocrystals. All magnetic and non-magnetic iron oxide crystals were characterized by scanning electron microscopy (SEM), UV-vis, and X-ray diffraction.

Biography

Ehsan Eftekhari is a Ph.D. student in the School of Environmental Engineering and Queensland Institute of Micro- and Nano-Technology Centre at Griffith University.

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Optoelectronic Properties Of I-Iii-Vi2 Solar Cell Absorbers

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We present calculated electronic and optical properties of the semiconducting chalcopyrites CuGaSe₂, CuGaS₂, CuInSe₂, and CuInS₂. These results were performed in the framework of density functional theory (DFT) using full potential linearized augmented plane wave (FP-LAPW) method. The calculated absorption coefficient gives the most important information in terms of energy band gaps of these chalcopyrites, using the LDA and mBJ corrections.

Keywords: I-III-VI₂, FP-LAPW, Electronic band structure, Absorption coefficient.

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Assessment of Nigerian mineral clays for the production of floor tiles panacea for economic growth

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Over total dependence on oil has been fingered as a threat to economic development and growth of third world countries, particularly Nigeria where other abundant natural minerals are begging for extraction and utilization. The technical knowhow, power supply, sophisticated equipment is noted as canker worm to the development of the technology. The conventional method of ceramic processing technology was used for this research and classical method was also used for the chemical analysis. The paper also asserted that floor tiles and composites development and productions are keys to economic liberation in Nigeria, but still they are relegated and not mentioned as the major lift to economic emancipation. This paper provides a review of the effectiveness and transformation disposition of clay in engineering development.

Keywords: Composites, Clays, Porosity, Chemical analysis, Ceramic processing

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