

Pereparation and Characterization of (Co-Si-Mg)Al₂O₄ Spinel: New Blue pigment

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Oxide spinels comprise a large group of structurally related compounds, many of which are of considerable technological significance. Aluminate spinels are of interest due to their technological applications as catalysts, refractories and pigments. Ceramic pigments are widely used in the ceramics industry as coloring agents in glazes for floor or wall whitewares and for the bulk coloration of polished, unglazed and porcelainized stoneware[1]. The synthesis of cobalt-based ceramic pigments must be optimized in order to minimize the production costs and environmental impact of the manufacturing process of these pigments.

In this work, nanoparticles of (Co-Si-Mg)Al₂O₄ was prepared by the method of mixing metal oxides and was characterized by XRF, XRD, SEM and thermal analyses. The results show that the (Co-Si-Mg)Al₂O₄ system, has spinel structure and a blue color with particles sizes about 90-680 nm. The color properties and the high thermal stability of this nanostructure suggest that it has the potential to be applied as satisfactory ceramic pigments.

Keywords: Oxide spinels, Ceramic pigments, (Co-Si-Mg)Al₂O₄, Blue color

References

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