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SYNTHESIS, CHARACTERIZATION AND CATALYTIC BEHAVIOR OF Mg-Zn FERRITES SUPPORTED ON ALUMINA

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Abstract

Catalysts based on nanocrystalline Mg-Zn ferrites supported on commercial alumina were prepared by *in situ* sol-gel auto-combustion technique. The as-obtained materials were characterized using Fourier Transform Infrared Spectroscopy (FT-IR), X-ray diffraction (XRD), atomic force microscopy (AFM) and Brunauer-Emmett-Teller (BET) specific surface area measurement. These materials were tested as catalysts for hydrogen peroxide decomposition and phenol oxidation reactions. The catalytic activity of ferrites supported on alumina is very much associated to their chemical composition. The activity of the catalysts was found to increase with the substitution of Mg with Zn. However, different structural parameters like the degree of crystallinity and the dispersion of active phase on the alumina surface, are also influencing factors. Based on these results, it has been concluded that sol-gel auto-combustion technique is efficient for producing nanocrystalline ferrite particles dispersed on alumina surface.

Key words: catalyst, H₂O₂ decomposition, phenol oxidation, sol-gel auto-combustion, supported ferrite

Received: December, 2012; *Revised final:* July, 2013; *Accepted:* July, 2013

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