

عنوان مقاله:

LOW TEMPERATURE MOLTEN SALT SYNTHESIS OF NANO CRYSTALLINE $MgAl_2O_4$ POWDER

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نویسندگان:

Y. Safaei-Naeini - *1 School of Metallurgy and Materials Engineering, Iran University of Science and Technology, Tehran, Iran*

F. Golestani-Fard - *Center of Excellence for Advanced Materials and Processing (CEAMP), Iran University of Science and Technology, Tehran, Iran*

F. Khorasanizadeh

M. Aminzare - *1 School of Metallurgy and Materials Engineering, Iran University of Science and Technology, Tehran, Iran*

S. Zhang - *Department of Materials Engineering, University of Sheffield, Sheffield S1 3JD, UK*

خلاصه مقاله:

Abstract: composition of MgO and nano boehmite. The reactant and potassium chloride, as the reaction media, were fired at $1000-1100$ °C at different dwell times (0.5-5 h) in the ambient atmosphere. After washing and filtration, the spinel nanopowder was characterized by X-ray diffraction (XRD), Scanning electron microscopy (SEM), and Brunauer-Emmett-Teller (BET) techniques. It was demonstrated that the formation temperature decreased to 150 °C. Particles revealed an average size of 30 nm with a narrow size distribution. The mechanism of MgAl was found to be a template type where the morphology and size of product were similar to those of alumina formed from boehmite decomposition. Prolonging the reaction time from 0.5 to 3 h, the reaction was further completed and crystallinity was improved. However, the increase of temperature was more effective in this regard. $MgAl_2O_4$ (MA) nano powder was synthesized via molten salt technique, by heating stoichiometric MgO and KCl at 1000 °C. The nano spinel $MgAl_2O_4$ formation

کلمات کلیدی:

Keywords: spinel nano powder; molten salt method; boehmite

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