

عنوان مقاله:

SYNTHESIS AND CHARACTERIZATION OF SALICYLIC ACID YTTRIUM NANOCOMPOSITE: A NEW
PRECURSOR FOR NANOSTRUCTURES

محل انتشار:

سومین کنفرانس بین المللی مواد فوق ریزدانه و نانوساختار (سال: 1390)

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خلاصه مقاله:

Yttria or yttrium oxide is added to zirconia to stabilize its conductive cubic structure, during fluorite phase, for increasing ionic conductivity. It has been widely used as doping agent for zirconia, as electrolyte of solid oxide fuel cells. In this work salicylic acid-Y(III) nano composite was formed by the reaction between Y(III) nitrate hexahydrate, potassium thiocyanide, KSCN, and 2-hydroxyl benzoic acid (salicylic acid) in ethylene glycol as solvent, by sonochemical method. Characterization of the mentioned compound was performed by FTIR spectroscopy, elemental analysis, X-ray powder diffraction (XRD), scanning electron microscopy (SEM), energy dispersive X-ray analysis (EDAX) and thermal analysis (TG/DTA). Thermal decomposition of the nano composite at two different conditions under air atmosphere leads to the formation of cubic Y₂O₃ nano structures with average particle size about 50 and 58 nm at 600 and 1000 °C respectively. Characterization of mono dispersed spherical yttria nano structures was performed by FTIR, scanning electron microscopy (SEM) and X-ray powder diffraction (XRD).

کلمات کلیدی:

Yttrium oxide, electrolyte, Solid oxide fuel cells, salicylic acid

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