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عنوان مقاله:

EFFECT OF MILLING TME ON MECHANOCHEMICAL SYNTHESS OF NANOCRYSTALILINE ZIRCONUMDBORDE

محل انتشار:

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

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خلاصه مقاله:

Zirconium diboride (ZrB2) is the material suitable for high performance applications. It has high melting point and high hardness value. On the other hand, recently, mechanical activation and mechanical milling have been extensively used for synthesis of advanced materials. In this present research, nanocrystalline ZrB2 was produced using mixtures of zirconium dioxide, boric acid and pure magnesium as raw materials via mechanochemical process. The phase transformation and structural evolution characterization during process were utilized by X-ray diffractometry (XRD), scanning electron microscopy (SEM) and transmission electron microscopy (TEM) techniques. A thermodynamic appraisal showed that the reaction between ZrO2, HBO3 and Mg is highly exothermic and should be self-sustaining. XRD analyses exhibited that the nanocrystalline ZrB, was formed after 60 h milling time. The results indicate that .increasing milling time up to 40 h. had no significant effect other than refining the crystallite size

کلمات کلیدی:

Mechanochemical; nanocrystalline; transmission electron microscopy, Zirconium diboride; Zirconium dioxride

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