عنوان مقاله:

Preparation of Nanosized Synthetic Rutile from Mechanically Activated Kahnoje Ilmenite Concentrate

محل انتشار:

دومین کنگره بین المللی علوم و فناوری نانو (سال: 1387)

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خلاصه مقاله:

Titanium dioxide particles are widely applied because of their unique dielectric and chemical properties that can be utilized in various industrial applications. Especially, titanium oxide nanoparticles less than 100 nm in diameter exhibit high mechanical strength and low sintering temperature [1]. Some reports indicated that in leaching processes of ilmenite concentrate, some amount of primary nanoparticles of titanium dioxide had been produced [2]. Recently, nanosized titania particles are prepared from leach liquor by centrifuging as by product [3].Currently, there are no reports regarding the direct preparation of nanosized TiO2 from ilmenite concentrate. This paper reports result of an investigation on the synthesis of nanosized TiO2 from reductive leaching of mechanically activated ilmenite concentrate by HCl. Interaction rate between acid and ilmenite concentrate was enhanced by addition of Fe powder as a reductive agent and mechanical activation of ilmenite concentrate by ball milling in neutral atmosphere.In this study, direct synthesis of nanosize TiO2 from ilmenite concentrate is reported. The effect of Fe powder addition and mechanical activation is discussed and the prepared nanosized Titania particles are characterized

کلمات کلیدی: