عنوان مقاله:

A Novel Route to Synthesis LiNbO۳ Nano particles via Mono Precipitation andSolid State Reaction

محل انتشار:

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تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

a novel technique has been employed to produce LiNbO۳ nano particles with near stoichiometriccomposition (Li :Nb ratio ۱ :۱), using Nb۲O۵ and Li۲CO۳ as starting materials. Nb(OH)۵ wasprecipitated from NbF۵ solution and after mixing with stoichiometric amount of Li۲CO۳ it waswell grounded until having a uniformly distributed powder. In order to study the effect ofcalcination time and temperature in addition to optimize the synthesis conditions on phase purityand particle size of synthesized powders, the mixture of NbF۵ and Li۲CO۳ powders was calcinedin conventional furnace in air at ۵۰۰, ۶۰۰, ۷۰۰ ℃, from ۱ up to ۴ hours. The calcinationtemperatures and the lattice parameters were determined by thermal gravimetric analysis (TGA)and X-ray diffraction method (XRD) Respectively. The average particle size and morphology wasstudied by Field emission scanning electron microscopy (FESEM). The results showed that singlephase LiNbO۳ has been obtained. The XRD patterns demonstrates that the best condition toproduce LiNbO۳ is at ۶۰۰ ℃ for ۳ hours, which were subsequently confirmed by FESEMobservations, due to finer average grain size. The LiNbO۳ powders produced by the novel route,has an uniform morphology with an average grain size of about ۱۱۰ nano meter

کلمات کلیدی:

.LiNbO۳, Lithium Niobate, Synthesis, Nanoparticle, Precipitation

لینک ثابت مقاله در پایگاه سیویلیکا: