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Investigation the heat treatment influence on the morphology of electrospun mullite nanofibers

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In this work, electrospinning was used for synthesis of fiber with small diameter and high homogeneity. Precursor sol was prepared from aluminum isopropoxide (AIP), hydrated aluminum nitrate (AN) as the alumina sources and tetraethylorthosilicate (TEOS) as the silicon source, and then mixed with polymeric solution, which contains different proportion of polyvinyl alcohol (PVA, as the template). Then synthesized nanofibers sintered at different temperatures in calcination and microwave furnace. The details of crystal development, microstructure and thermal decomposition behavior of the electrospun nanofibers were investigated by X-ray diffraction (XRD) and scanning electron microscopy (SEM). According to the results, sintered samples via microwave furnace had higher thermal stability and the crystallization temperature was lower than those sintered in calcination furnace.

Biography

Marjan Mohammad Ali Zadeh received her BS and MS in Material Engineering, ceramic branch, from Shahrekord University (Shahrekord, Iran) and Material and Energy Research Center (MERC, Karaj, Iran) in 2009 and 2013, respectively. She has worked as a Researcher at Material and Energy Research Center (MERC) for 3 years. Through these years, she has worked with Dr. Kianpour-rad on projects in connection with nano materials, polymers and ceramics. Her MS thesis was on synthesis of mullite nanofibers via electrospinning method and investigation the polymer roles in their morphology. Fortunately she has defended her thesis with A grade. She has published 6 scientific papers in the world journals and international and national conference proceedings. Currently she is working in a CNG-Cylinder maker factory (Pars M.C.S Company) as head of laboratory.

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