World Academy of Science, Engineering and Technology
International Journal of Chemical and Materials Engineering
Vol:11, No:01, 2017

Synthesis and Electromagnetic Property of $Li_{0.35}Zn_{0.3}Fe_{2.35}O_4$ Grafted with Polyaniline Fibers

Authors : Jintang Zhou, Zhengjun Yao, Tiantian Yao

Abstract : $Li_{0.35}Zn_{0.3}Fe_{2.35}O_4$(LZFO) grafted with polyaniline (PANI) fibers was synthesized by in situ polymerization. FTIR, XRD, SEM, and vector network analyzer were used to investigate chemical composition, micro-morphology, electromagnetic properties and microwave absorbing properties of the composite. The results show that PANI fibers were grafted on the surfaces of LZFO particles. The reflection loss exceeds 10 dB in the frequency range from 2.5 to 5 GHz and from 15 to 17GHz, and the maximum reflection loss reaches -33 dB at 15.9GHz. The enhanced microwave absorption properties of LZFO/PANI-fiber composites are mainly ascribed to the combined effect of both dielectric loss and magnetic loss and the improved impedance matching.

Keywords : $Li_{0.35}Zn_{0.3}Fe_{2.35}O_4$, polyaniline, electromagnetic properties, microwave absorbing properties
Conference Title : ICFPM 2017 : International Conference on Functional Polymeric Materials
Conference Location : Singapore, Singapore
Conference Dates : January 08-09, 2017