

عنوان مقاله:

Preparation and investigation of electromagnetic wave absorption of hybrid nanocomposites of Ba.5Sr.56Fe2O3/MWCNT/PANI

محل انتشار:

بیست و یکمین سمینار شیمی معدنی انجمن شیمی ایران (سال: 1398)

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خلاصه مقاله:

In this study, the wave absorption properties of ferrite based nanocomposite were investigated by using strontium and barium. This nanoparticle has been prepared by variety of methods and different commercial surfactants previously, in the present work the nanocomposite can be conveniently prepared by inexpensive materials. To enhance the absorption of magnetic waves, carbon nanotubes and polyaniline in the presence of magnetic nanoparticles were used [1-2]. After the Barium strontium ferrite nanoparticle were prepared by sol-gel method, radar absorption properties were enhanced by activated carbon nanotubes and polyaniline. The characteristics of the nanocomposites were investigated by FESEM, XRD, VSM and FTIR analysis and microwave absorption at 8-18 GHz. The best absorbance was observed in -45 dB at the X-band range for Ba.5Sr.56Fe2O3/MWCNT/PANI sample (4% polyaniline – 96% a mixture of barium ferrite and strontium ferrite) while the weight ratio of the powder was 50% with 5 mm thickness. In the X-band range the absorbance increased from -5.8 dB to -20 dB for Ba.5Sr.56Fe2O3/MWCNT/PANI sample by in-situ method (a mixture of barium ferrite/ nanotube and strontium ferrite / nanotube) with an increase in thickness from 1.8 to 6 mm.

کلمات کلیدی:

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