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Abstract

Synthesıs of magnetıc nanopartıcle/polybutadıen composıte and ıts magnetoreology

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Abstract:

In thisstudy, BaFe12O19 (bariumferrite), NiFe2O4 (nickelferrite) and SrFe12O19 (strontiumferrite) weresynthesized by sol-gel method, Fe3O4 (magnetite) wassynthesized by co-precipitated. Withthepolymeric main phase PBD (polybutadiene), magneticcompositefilmswereproduced in differentmasscompositions. Thesynthesizednanoparticleswerecharacterized by XRD (X-ray diffractometer), SEM (Scanningelectronmicroscopy) andZeta-Sizer. Zeta-Sizerand SEM analyzesshowedthatnanoparticleswereproducedsuccessfully, and XRD analysisshowedthatthenanoparticleswere in thedesiredstructure. Magnetizationmeasurements of nanoparticlesandcompositesweremade by using VSM (Vibratingsamplemagnetometer). Fe3O4and NiFe2O4showedsuperparamagnetic, BaFe12O19and SrFe12O19showedferromagneticproperties. Mössbaueranalysis of Fe3O4nanoparticleshowedsuperparamagneticproperties. As a result of analysis of magneticproperties of BaFe12O19/PBD, NiFe2O4/PBD, SrFe12O19/PBD and Fe3O4/PBD composites, Ms (saturationmagnetization) increasedwiththeincrease of% of themass of magneticnanoparticles. As a result, thesynthesis of magneticnanoparticlesandtheproduction of a newcompositematerialwasrealized.

Biography:

Satılmı BASAN has completed his PhD at Hacettepe Univesity in1982.He studiedthepostdoctoralstudiesfrom Glasgow University, Department of Chemistryand Akron University,Department of PolymerEngineering.He is theHead of Department of ChemicalEngineering, HittiteUniversity, theFounder Dean of Faculty of Engineering, HittiteUniversity.Editor in Chief, Journal of theTurkısh-ChemicalSociety, Section B: ChemicalEngineering. He has publishedmorethan 28 papers in reputedjournals.

Recent Publications:

1. Basan S, et al; J Tissue Eng Regen Med, 2016

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