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Synthesis of Fe3O4 Ceramic Magnet Via Cold sintering Process

Iron oxide (Fe3O4) ceramic magnets were prepared by using the cold sintering process. The nitric acid solution and water are liquid mediums. The Fe3O4 1.5g and nitric acid 0wt%, 3%wt%, 5wt%, and 10wt% were used. The phase and morphology were characterized by X-Ray diffraction (XRD) and field emission scanning electron microscope (FESEM), respectively. The XRD analysis showed the peaks corresponding to the cubic phase of magnetite without any secondary phase. The SEM image presented the Fe3O4 nanoparticles are near-spherical/ellipsoidal shape. In addition, the magnetic properties were studied by the vibrating sample magnetometer (VSM). The magnetic properties of all of the samples are soft ferrimagnetic properties

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