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SYNTHESIS AND CHARACTERIZATION OF COBALT-GRAPHENE NANO COMPOSITE BY MECHANICAL MILLING AND SONICATED EXFOLIATION

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A cobalt nanoparticle-graphene composite was synthesized by using mechanical milling and sonication assisted exfoliation. Graphite powder and cobalt metal powder in the ratio of 4:1 by weight was first mechanically milled for 60 hrs. in Toluene medium. The milled powder was then exfoliated by using sodium lauryl sulfate surfactant to produce cobalt-graphene nano composite. The composite have shown good magnetic property due to the presence of cobalt nanocrystals and this was confirmed by vibrating sample magnetometer (VSM). Due to the sonication-assisted exfoliation, few layers of graphene formed which were confirmed by Raman spectroscopy, x-ray photo electron spectroscopy (XPS) and atomic force microscopy. Phase analysis and size of the cobalt-graphene nano composite was calculated with the help of x-ray diffraction pattern and transmission electron microscopy.

Biography

Upendar Pandel is expertise in Nanomaterials, Engineering Materials, Corrosion and Surface Coatings. As a professions in MITI jaipur they has published many papers in national and international journals and conferences.