

Effect of Grain Size of Nano Composite on Raman and Magnetic Proprieties

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Abstract: Based Iron-cobalt alloys exhibit particularly interesting Raman and magnetic properties, with high Curie temperatures, the highest saturation magnetizations, high permeability, and low losses and is relatively strong and partial oxidation of Fe and Co. The cost of these alloys has confined them, since their discovery by Elmen in 1929, to applications where the volume is small and high magnetic performances are critical. Sintering is the procedure of formation and compaction of a material. We have prepared the nano crystalline alloy by the mechanical milling process in a high energy planetary ball-mill PM400. Morphological, micro-structural, magnetic characterizations of the powders milled several times were investigated by scanning electron microscopy, X-ray diffraction, vibrating manometers sample and Raman spectroscopy. The coercivity value increase during millingtime from 0.018 to 185.9 Oe and saturation magnetization value from 42.7 to 51.1 emu/g, respectively.

Keywords : Mechanical Alloying, Nanostructured FeCo, Magnetic and Raman characterization