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MAGNETIC, MICROWAVE AND ABSORBING PROPERTIESFe-Co OF ALLOY SYNTHESIZED BY MECHANICALALLOYING PROCESS

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Abstract : Nanocrystalline Fe(1-x) Cox mixtures have been prepared by mechanical alloying using aplanetary ball mill under several milling conditions. Their structures and magnetic propertieswere investigated. Mechanical alloying is a non-equilibrium process for materials synthesis. Thestructural effects of mechanical alloying of powders were investigated by scanning electronmicroscopy, X - Ray diffraction analysis and bench of microwaves. Consequently, the alloypowder with average grain size 10-13 nm was obtained. Maximum saturation magnetization Mswas obtained at the composition of 65 % Co. Microwave measurements were performed on themechanically milled Fe(1-x) Cox powder. It has been shown that fine nanocrystalline Fe-Co alloypowders prepared by mechanical milling are promising for microwave applications.

Keywords : Fe-Co powder, Mechanical Alloying, Magnetic Properties, Microwave