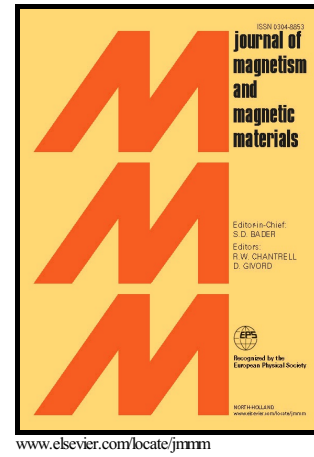


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The structural, magnetic and microwave properties of spherical and flake shaped carbonyl iron particles as thin multilayer microwave absorbers

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Abstract

An increase in microwave permeability is a prerequisite for reducing the thickness of radar absorber coatings. The aim of this paper is to increase the magnetic loss of commercial carbonyl iron particles for fabricating wideband microwave absorbers with a multilayer structure. For this purpose, carbonyl iron particles were milled and their static and dynamic magnetic properties were studied before and after milling. A distinct morphological change from spherical to flake-like particles is measured with increased milling time, whereas no distinct changes in magnetic properties are measured with increased milling time. The imaginary part of the permeability (μ'') of the milled carbonyl iron particles increased from 1.23 to 1.88 and showed a very broad peak over the entire frequency range 1-18 GHz. The

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