

## Accepted Manuscript

Enhanced impedance matching and microwave absorption properties of the MAMs by using ball-milled flaky carbonyl iron-BaFe<sub>12</sub>O<sub>19</sub> as compound absorbent

Ying Zhai, Dongmei Zhu, Wancheng Zhou, Dandan Min, Fa Luo

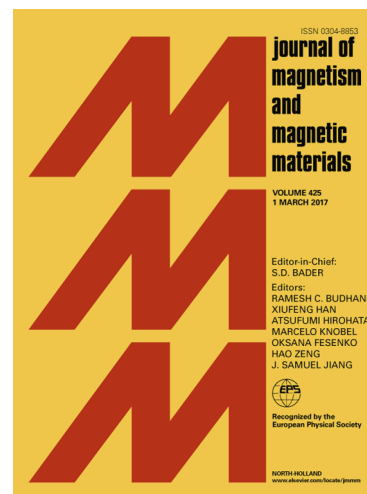
PII: S0304-8853(18)31344-1  
DOI: <https://doi.org/10.1016/j.jmmm.2018.07.031>  
Reference: MAGMA 64137

To appear in: *Journal of Magnetism and Magnetic Materials*

Received Date: 4 May 2018  
Revised Date: 6 July 2018  
Accepted Date: 9 July 2018

Please cite this article as: Y. Zhai, D. Zhu, W. Zhou, D. Min, F. Luo, Enhanced impedance matching and microwave absorption properties of the MAMs by using ball-milled flaky carbonyl iron-BaFe<sub>12</sub>O<sub>19</sub> as compound absorbent, *Journal of Magnetism and Magnetic Materials* (2018), doi: <https://doi.org/10.1016/j.jmmm.2018.07.031>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



**Enhanced impedance matching and microwave absorption properties of the  
MAMs by using ball-milled flaky carbonyl iron-BaFe<sub>12</sub>O<sub>19</sub> as compound  
absorbent**

Ying Zhai\*, DongmeiZhu, WanchengZhou, Dandan Min, Fa Luo

*State Key Laboratory of Solidification Processing, Northwestern Polytechnical University, Xi'an,  
Shaanxi 710072, China*

*E-mail address: [zy7058@126.com](mailto:zy7058@126.com) (Y. Zhai)*

**ABSTRACT**

The electromagnetic (EM) and microwave absorption properties of microwave absorbing materials (MAMs) with ball-milled flaky carbonyl iron-BaFe<sub>12</sub>O<sub>19</sub> (FCI-BaFe<sub>12</sub>O<sub>19</sub>) as compound absorbents and silicon resin as matrix were investigated in the frequency range of 2.6-18.0GHz. Results indicate that efficiently enhanced impedance matching and microwave absorption of the FCI-BaFe<sub>12</sub>O<sub>19</sub>/silicon resin composites were obtained due to the microstructure and synergism of FCI-BaFe<sub>12</sub>O<sub>19</sub> particles as well as the inherent electromagnetic properties. And the values and frequency dependencies of EM and microwave absorption properties of the MAMs can be simply adjusted by filling FCI-BaFe<sub>12</sub>O<sub>19</sub> absorbents with different mass ratios. When the mass ratio was 6:1, the reflective loss (RL) values below -5dB were obtained in the frequency range of 5.4-18GHz, 4.9-18GHz and 4.5-18GHz with the thicknesses of 1.0mm, 1.1mm and 1.2mm, respectively. Moreover, RL values are all below -8dB in military X band, meaning that 85% EM wave can be absorbed. The advantages demonstrate that this FCI-BaFe<sub>12</sub>O<sub>19</sub> compound absorbent can be acted as

Download English Version:

<https://daneshyari.com/en/article/8152467>

Download Persian Version:

<https://daneshyari.com/article/8152467>

[Daneshyari.com](https://daneshyari.com)