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Investigation of Barium Ferrite, Searching for Soft Magnetic Materials in High Frequency Applications[1] SHUANG WU, MINT Center, The University of Alabama, Tuscaloosa, AL, USA, ISAO KANADA, Materials Development Center, TDK Corporation, Narita, Chiba, Japan, TIM MEWES, CLAUDIA MEWES, GARY MANKEY, MINT Center, The University of Alabama, Tuscaloosa, AL, USA, YUSUKE ARIAKE, Materials Development Center, TDK Corporation, Narita, Chiba, Japan, TAKAO SUZUKI, MINT Center, The University of Alabama, Tuscaloosa, AL, USA — Soft ferrites have been extensively and intensively applied for high frequency device applications. Among them, Ba-ferrites substituted by Mn and Ti are particularly attractive as future soft magnetic material candidates for advanced high frequency device applications. However, very little has been known as to the intrinsic magnetic properties, such as damping parameter, which is crucial to develop high frequency devices. In the present study, much effort has been focused on fabrication of single crystal Ba-ferrites and measurements of damping parameter by FMR. Ba-ferrite samples consisted of many grains with various sizes have been prepared. The saturation magnetization and the magnetic anisotropy field of the sample are in reasonable agreement with the values in literature. The resonances positions in the FMR spectra over a wide frequency range also comply with theoretical predictions. However, the complex resonance shapes observed makes it difficult to extract dynamic magnetic property. Possible reasons are the demagnetization field originating from irregular sample shape or existence of multiple grains in the samples.

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