Effect of the large ion substitution on structural and microwave characteristics of the M-type Ba-hexaferrites

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Abstract: A theoretical calculations were carried out for Bi-substituted barium M-type hexaferrites. In this calculations, changes in the parameters of the crystal lattice and the magnetic moment were considered using the method of protectively coupled waves. Because of the analysis of the substitution mechanisms for Bi-substituted hexaferrites, it was found that substitution occurs in the positions of Fe ions (B-site substitution). Microwave properties were investigated for BaFe12-xBixO19 (x = 0.1–1.2) hexaferrites in the range of 1–18 GHz. The measured S-parameters were used for calculation of the main

microwave characteristics: real/imaginary parts of the permittivity and magnetic permeability. It was analyzed the frequency dependences of reflection losses.

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