

Thesis Title	Magnetic Properties and Microstructure of Co – Ti Doped in Barium Ferrite ( $\text{BaFe}_{12-2x}\text{Co}_x\text{Ti}_x\text{O}_{19}$ )
Thesis Credits	15
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Degree of Study	Master of Engineering
Department	Materials Technology
Academic Years	2001

#### Abstract

The propose of this research is to study the magnetic properties and microstructure of Co - Ti doped barium ferrites. Seven compositions of  $\text{BaFe}_{12-2x}\text{Co}_x\text{Ti}_x\text{O}_{19}$  were prepared by the ceramics method and calcining at 1,100 °C. They were then divided into three groups and sintered at 1,200, 1,300 and 1,350 °C, respectively. The sintered products were checked by XRD and found that all specimens were of hexagonal structure. Their microstructures by SEM showed that the average grain size decreased with increasing Co and Ti contents, but it increased with the sintering temperatures. The ratio of  $M_{sx}/M_{s0}$  and the coercive field were lower as the contents of Co - Ti increased. However, the coercivity decreased as the sintering temperature increased. Mössbauer parameters showed that Co and Ti preferred to enter  $4f_{iv} + 2a$  and  $4f_{vi}$  sites.

Keywords : barium ferrite / hexagonal structure / grain size