

FERRITE / FORMING / DEFLECTION YOKE

SUTTISAN ANUNTARATANACHAI : CHARACTERIZATION AND FORMING STUDY OF
FERRITE FOR DEFLECTION YOKE PRODUCTION. THESIS ADVISOR :

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Investigation of commercial deflection yokes by x-ray fluorescence and x-ray diffraction indicated that they were zinc-magnesium-iron oxide solid solutions with spinel structure. Microstructural analysis by observing through a scanning electron microscope showed grain size ranging from 2 to 100 μm with both inter and intra-granular pores. Based on these results, the technological aspects of deflection yoke fabrication processing were studied by preparation of starting material having approximately the same chemical composition, calcination, grinding and granulation prior to pressing. Effects of pressing aids and different punch pressures were carried out to determine the optimum condition. It was found that specimen having 2.4 % of pressing aid with 2.0 ton/cm^2 of punch pressure yielded highest green density and strength. After sintering at 1300 $^{\circ}\text{C}$, these specimen had 95 % theoretical density and microstructures similar to the commercial yokes. A deflection yoke was then produced using the same technology by selecting 2.4 % of the pressing aid with 0.8 ton/cm^2 of punch pressure. After sintering at 1330 $^{\circ}\text{C}$, this deflection yoke had 97.8 % theoretical density with a microstructure similar to commercial yokes.