

Determination of Steel Cleanliness of Non-Grain Oriented Electrical Steels

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Abstract : Electrical steels are widely used as a magnetic core materials in many electrical applications such as transformers, electric motors, and generators. Core loss property of these magnetic materials refers to dissipation of electrical energy during magnetization in service conditions. Therefore, in order to minimize the magnetic core loss, certain precautions are taken from steel producers; "Steel Cleanliness" is one of the major points among them. For obtaining lower core loss values, increasing proper elements in chemical composition such as silicon is a must. Therefore, impurities of these alloys are a key value for producing a cleaner steel. In this study, effects of impurity levels of different FeSi alloying materials to the steel cleanliness will be investigated. One of the important element content in FeSi alloy materials is Calcium. A SEM investigation will be done in order to present if Ca content in FeSi alloy is enough for proper inclusion modification or an additional Ca-treatment is required.

Keywords : electrical steels, FeSi alloy, impurities, steel cleanliness

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