MnZn Ferrite Core MAF065 for A tomoti e Noise Filters

1. Introduction

MnZn ferrite cores are a type of magnetic material which is produced by mixing iron oxide as raw materials with manganese oxide and zinc oxide, followed by sintering the green cores at a high temperature. In the JFE Steel Group, MnZn ferrite cores are manufactured by JFE Ferrite Co., Ltd. (Kurashiki, Okayama Prefecture, Japan), JFE Ferrite (Thailand) Co., Ltd. (Rayong Province, Thailand) and JFE Jiangmen Ferrite Co., Ltd. (Jiangmen City, Guangdong Province, China), which are subsidiaries of JFE Chemical Corporation. The iron oxide as raw materials is obtained by JFE Chemical Corp. by spray roasting with hydrochloric acid used in cleaning (pickling) the surface of steel strips in the cold-rolling process at JFE Steel. Thus, as one feature of JFE's MnZn ferrite cores, these products are manufacturing by an integrated process entirely in the JFE Steel Group, from raw material with the world's highest level of purity to the final product cores.

Among MnZn ferrite cores, high permeability mate

EV), and demand is increasing accompanying the popularization of those automobiles. The properties required in automotive noise filters are high permeability, stability in high temperature operation and high frequency noise removal performance. This paper introduces the features of MAF065, which targets automotive noise filter applications, and has excellent performance in all these properties.

2. Features of MAF065

2.1 Positioning of Product

Figure 1 shows a comparison of the properties of the conventional JFE Ferrite high permeability materials and the newly-developed MAF065. In this figure,

Among the MA Series products, the existing mate

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tial permeability improves. Therefore, in MAF065, higher initial permeability than that of MA055 was achieved by optimizing the sintering conditions of the manufacturing kiln to control the crystal structure.

The Curie temperature was also increased by approximately 20% in comparison with MA055 by adjusting the ratio of the iron oxide, manganese oxide and zinc oxide raw materials, adding trace amounts of materials and optimizing the temperature and atmosphere during sintering.

The Curie temperature and impedance at high fre-

filters.

In the future, we plan to develop a series of MAF materials as products with high Curie temperatures and excellent frequency characteristics, and will work to develop materials that respond to noise with even higher frequencies.

References

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