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### 烧结温度对Mn-Zn铁氧体吸波性能的影响

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### EFFECT OF SINTERING TEMPERATURE ON MICROWAVE ABSORBING BEHAVIOUR OF Mn-Zn FERRITE

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摘要

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**摘要** 研究Mn-Zn铁氧体的烧结温度对其微波吸收性能的影响,选用了5种烧结温度制备铁氧体,并对其作了X-射线衍射相组成分析。实验表明采用1500℃高烧结的铁氧体较其他温度下烧结的吸波性好。

**关键词:** Mn-Zn铁氧体 烧结温度 微波吸收特性 相组成

**Abstract:** Microwave reflectivity of epoxy matrix composite containing Mn-Zn ferrite sintered at different temperatures such as 1100℃, 1200℃, 1300℃, 1400℃ and 1500℃ is measured in the frequency range of 11.0GHz to 18.0 GHz. The phase constitution of the Mn-Zn ferrite is analyzed by X-ray diffraction. It is found that Mn-Zn ferrites sintered at different temperatures have the same main phases, while the relative content of the same kind is different. The higher the sintering temperature is, the more content Fe<sub>3</sub>O<sub>4</sub> has, and the less content α-Fe<sub>2</sub>O<sub>3</sub> and γ-Fe<sub>2</sub>O<sub>3</sub> have. The results also show that the ferrite prepared at 1500℃ has better microwave absorbing property than those prepared at other temperatures. It may be concluded that the variation of Sintering temperature results in the change of hysteresis loss and dielectric loss of Mn-Zn ferrite. The electron exchange effect between Fe<sup>2+</sup> and Fe<sup>3+</sup> becomes stronger and, the turbulent loss is more remarkable due to the formation of excessive Fe<sup>2+</sup> in deoxidizing of Fe<sub>2</sub>O<sub>3</sub> at higher sintering temperature.

**Keywords:** Mn-Zn ferrite sintering temperature microwave absorbing behaviour phase constitution

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