

ABSTRACT

INFLUENCE OF MnO₂ DOPANT ON V-I AND V-T CHARACTERISTICS OF ZINC OXIDE VARISTOR IN 1300 °C SINTERING TEMPERATURE

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This discusses the influence of MnO₂ dopant on characteristics volt-ampere (V-I) and volt-time (V-t) in varistor metal oxide with principal materials of ZnO. The composition concentration of MnO₂ is varied from 0.5 % mol, 1% mol, 1.5 % mol, 2 % mol, and 5 % mol. Ceramics varistor zno and zno dopan with MnO₂ have done. Making process varistor this pass 3 stages that is preparation with mix powder ZnO with powder MnO₂, printing process with dry pressing method and the last process is sintering varistor disk in 1300 °C. After that, the characteristics of volt-ampere (V-I) and characteristics character volt-time (V-t).

From V-I characteristics constants non-linear (β) and varistor resistance are obtained. Adding 0,5 % and 1 % mol MnO₂ can increase non-linear constant varistor with β smaller is compared to that of ZnO varistor pure. It also increase varistor resistances. While for the others decrease varistor resistances.

The result from characteristics measurement V-t is got response curve varistor and characteristics curve V-t varistor. Varistor ZnO pure and ZnO-MnO₂ has response curve varistor present under impulse voltage curve. It's has characteristics curve V-t lower compared with characteristics curve V-t impulse voltage. so that can be said varistor work. Varistor ZnO-MnO₂ has characteristics curve V-t lower than varistor ZnO. And ZnMn 2 % has lowers characteristics curve between varistor ZnO-MnO₂ the other.

Keyword : varistor, ZnO-MnO₂, characteristics volt-ampere (V-I), characteristics volt-waktu (V-t), non-linearity varistor