

Characteristics of Supercapacitor of Hydrrous Ruthenium Oxide/CNTs after
Heat Treatment

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Abstract

In this study, the characteristics of supercapacitor of hydrrous ruthenium oxide mixed with carbon nanotubes additive were examined. The cathodic deposition was used, which was fast and easy to prepare the electrode of supercapacitor. Specimens were prepared at various deposition conditions. The specimens were then going through several heat treatment conditions in Argon. From the results of TGA, the most of crystalline water of hydrrous ruthenium oxide was evaporated at 250°C. The percentage of water capacity in hydrrous ruthenium oxide was about 12% in the specimen without carbon nanotube additive. However, the percentage of water was measured to be 16 - 22% in the specimen with carbon nanotube additive. When heat treatment was performed at lower temperature, the specimens had the combination of amorphous and crystalline structure. While the amorphous structure of specimens were transformed to crystalline structure as the heat treatment temperature was performed high than 550°C. The critical condition of decay in capacitance was about 300°C.

Keyword : Carbon Nanotube, Heat treatment, Supercapacitor, Hydrrous Ruthenium