

## EC02

### 슈퍼커패시터용 DAAQ가 코팅된 CNFs 전극의 제조 및 전기화학적 특성

#### Preparation and Electrochemical Characteristics of CNFs Coated by DAAQ electrode for Supercapacitor

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Electrochemical supercapacitors are energy storage devices that can store more energy than traditional capacitors and discharge this energy at higher rate than rechargeable batteries. Although the concept of storing relatively high electrical energy in reasonably small capacitors was proposed about three decades ago, the real efforts of research and development toward practical commercialization only happened over the past 10 years. The electrochemical supercapacitors based on conducting polymers have been proposed depending on their electrode material. A new type Supercapacitor was constructed by using carbon nanofibers(CNFs)-straight type and DAAQ(1,5-diaminoanthraquinone). DAAQ was deposited on the carbon nanofibers by chemical polymerization with  $\text{FeCl}_3$  and  $(\text{NH}_4)_2\text{S}_2\text{O}_8$  as oxidant in the 0.1M  $\text{H}_2\text{SO}_4$ . Throughout the whole polymerization, the reaction was carried out with constant sonication. Result of the CNFs/DAAQ composite material is shown in the typical TEM, SEM images and FTIR, XRD, TG analysis. It is clear that the surface of carbon nanofibers was quite uniformly coated with DAAQ. Its electrochemical characteristics were investigated by Cyclic Voltammetry. For CNFs/DAAQ supercapacitor, the capacitance and specific energy were greatly improved(50F/g) probably due to the interaction.