In this study, the carbon-based materials that are spotlighted as the next generation of energy materials are used for supercapacitors manufacturing.

For this purpose, graphene oxide was synthesized. In addition, it is intended to improve the usability and storage efficiency of the energy storage device as a fabric type by filling and reducing carbon nanofibers by electrospinning.

The electrochemical measurement was performed by using a three-electrode method with Pt as a counter electrode and Ag/AgCl as a reference electrode, and a 1M KOH solution was used as an electrolyte.

All electrodes were circulated 10times at a scanning rate of 20mV/s for stabilization. The fabricated specimens and the general PAN-based carbonized specimens were compared and analyzed.

The shape of the current density was close to the rectangular shape according to the scanning speed of both test specimens.

It was confirmed that the electrochemical reversibility was excellent and the area of the specimens to which graphene oxide was added at the same current density was larger. In addition, the test specimens to which graphene oxide was added under the condition of a current density of 1A /g showed a higher effective filling capacity than a general PAN type test specimen.

Finally, in the case of the test specimens in which graphene particles are in carbon nanofibers, an effective charging capacity of about 1.2times when compared to that of general PAN-based carbon nanofiber test specimens was obtained.