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## The effect of acid treatment on thermally exfoliated graphite oxide as electrode for supercapacitors

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**Abstract:** Supercapacitor is an effective energy storage device that store energy using porous conducting materials. With its great performance, graphene has potential applications in supercapacitors. However, graphene prepared by thermal expansion of graphite oxide always has very limited storage capacity, so we treat the thermal exfoliated graphite oxide (TEGO) in mixed acid to enhance the hydrophilicity of TEGO and achieve higher capacitance. The electrochemical properties of supercapacitor electrodes are studied by cyclic voltammetry and galvanostatic charge/discharge methods. Supercapacitor prepared with acid treated graphene has good electrochemical performance, with a maximum specific capacitance of  $196 \text{ F g}^{-1}$  at the charge/discharge current density of  $100 \text{ mA g}^{-1}$  using  $2 \text{ M KOH}$  electrolyte, yielding an improvement of  $\sim 40\%$  compared with that of the pristine TEGO.

**Keywords:** supercapacitors; chemical modification; thermal exfoliated graphite oxide; graphene; electrochemical properties

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