

PREAPARTION AND CHARACTERIZATION OF POROUS GRAPHENE FROM SRI LANKAN VEIN GRAPHITE

Manikanth P, Rasandran S, Sitanamaluwa H.S*

Department of Materials Science and Engineering, University of Moratuwa, Sri Lanka

**Email: hansinees@uom.lk*

GO (Graphene Oxide) is one of the most promising candidates for application of energy storage devices such as batteries and supercapacitors. For energy storage applications, surface area of the material is very important. In this study, graphene oxide was subjected to KOH activation process to enhance its surface area via creating nano and micro pores in the structure. The effect of the activation time on the porous structure and surface area was studied. KOH activation was carried out for 0.5h, 1h, 1.5h and 2h, and the resulted Activated Graphene Oxide (AGO) was characterized using scanning electron microscopy and Fourier transform infrared spectroscopy. Also, the specific surface area of the resulting materials was compared using methylene blue adsorption method. The results indicate that the activation at a temperature of 800°C and a time of 2 hours gives the hierarchical pore structure with best surface area.

Keywords: Graphene oxide, Activated graphene oxide, Specific surface area, Sri Lankan Graphite