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## **WATERBORNE POLYURETHANE-EXFOLIATED GRAPHITE OXIDE NANOCOMPOSITE: THE EFFECT OF PREPARATION METHOD**

H.M. Jeong, Y.R. Lee, J.Y. Jang

*Department of Chemistry, University of Ulsan, Ulsan 680-749, Korea (South)*  
(*hmjeong@mail.ulsan.ac.kr; haveroc@nate.com*)

Graphite oxide (GO), which is prepared by the oxidation of graphite, is a graphite-derived compound with layered structure. It has been reported recently that GO can be exfoliated into single sheets if sufficiently oxidized GO, where the inter-graphene spacing associated with the native graphite is completely eliminated in the oxidation stage, is used for exfoliation, and if adequate pressure is built up at the gallery between the GO sheets during rapid heating by CO<sub>2</sub> which is evolved by the decomposition of functional groups. This completely exfoliated graphite oxide (CEGO), where the inter-graphene spacings associated with GO and that of graphite are completely excluded after thermal expansion, has an affinity to polar solvents and polymers as well as good conductivity, because CEGO is composed of functionalized single graphene sheets having the polar functional groups that are remained even after thermal treatment.

Waterborne polyurethanes (WPU) are unique polymeric materials with a wide range of physical and chemical properties. Because a wide range of monomeric materials are now commercially available and tailor-made properties can be obtained from well-designed combinations of monomeric materials, WPUs can be tailored to meet the highly diversified demands of modern technologies.

In this work, we prepared a new conductive WPU nanocomposites with CEGO as a nanofiller without further surface treatment. Depending of the preparation method, the great changes of their physical properties were observed, even at the same content of CEGO. This paper reports about that.