

## Enhanced Dispersion of Multi-Walled Carbon Nanotubes by Polydimethylsiloxane Coating and Its Application

Hye Soo Yoon, Myung-Geun Jeong, Kwang-Dae Kim, Dae Han Kim,  
Eun Ji Park, Young Dok Kim\*

Department of Chemistry, Sungkyunkwan University, Suwon, Gyeonggi-do, 440-746, Korea

We report on the preparation of polydimethylsiloxane (PDMS) coated multi-walled carbon nanotubes (MWNTs) followed by their dispersion in various solvents. To disperse MWNTs without acids or surfactants, which are the commonly used methods, hydrophobic PDMS coating was selected. It was determined that the PDMS coated MWNTs are more dispersed in diverse solvents such as dimethyl formamide (DMF) and acetone than bare MWNTs. In case of DMF solvent, dispersion of MWNT was improved by 40 % upon PDMS-coating of MWNT, which was confirmed by UV/Vis absorption spectroscopy. In this work, the PDMS coated MWNTs dispersed solution was also used for the fabrication of film, which is conductive, transparent and superhydrophobic because of the reduced aggregation and increased water repellency of MWNTs.

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