

Dispersion state of SWCNTs: From diluted to concentrated SWCNT inks

Dragana Stevic,¹ Radovan Kukobat,¹ and Katsumi Kaneko¹

¹*Center for Energy and Environmental Science, Nagano380-8553, Japan*

Preparing stable SWCNT dispersions of high dispersibility and desirable concentration is challenging in colloidal science and application of carbon nanotubes. We tuned concentration of SWCNT inks by dispersing SWCNTs with ultrasonication and changing the ratio of SWCNTs and Zn/Al complex dispersant in the dispersion system. An optimal ratio of Zn/Al complex and SWCNTs is 10 : 1 and the concentration of SWCNTs ranges from diluted to the concentrated inks in the range of 0.001 to 1.00 wt.%. Viscosity of the SWCNT inks increased from 1 mPa·s to 16 Pa·s due to increasing the concentration of SWCNTs in the system. Wide range of concentration of SWCNT inks should be promising for fabricating various materials such as thin films and composites.