

Surface coating properties on Cu/CNTs composite using different grinding media by a stirred ball mill with DEM simulation

Batiargal Uyanga<sup>1</sup>, 보르 압가란<sup>1</sup>, Ichinkhorloo Batchuluun<sup>1</sup>, 이재현<sup>2,1</sup>, Bayanjargal Ochirkhuyag<sup>3</sup>, 최희규<sup>1,†</sup>

<sup>1</sup>창원대학교; <sup>2</sup>Engineering Research Center (ERC) for Integrated Mechatronics Materials and Components, Changwon National University, Changwon, Korea; <sup>3</sup>Department of Environmental Science and Chemical Engineering, School of Engineering and Applied Sciences, National University of Mongolia, 14201 Ulaanbaatar, Mongolia  
(hkchoi99@changwon.ac.kr<sup>†</sup>)

The mechanical dry coating technique was used to fabricate carbon nanotubes (CNTs) coatings on the copper (Cu) particles. We investigated effect of operational variables on the fabrication of Cu/CNTs composite powder by a stirred ball mill with (DEM). The experimental results showed the change of particle morphology and the surface coating property using SEM and FESEM. The motion of the balls was simulated by DEM under the same condition as that of the grinding. The results showed impact energy and power of three kinds of ball materials has a noticeable difference. Nevertheless composite morphologies were slightly dependent on different materials of the balls. It was investigated that the CNTs were well attached on the surface of copper powder at low rotation speed and short time in the stirred ball mill by FESEM results.