

Powder Composite and Surface Coating Property for Fabrication of Nano Composites based on Metal Materials during Grinding Process by Various Media Mills

최희규<sup>†</sup>, Amgalan Bor<sup>1</sup>, Batchuluun Ichinkhorloo<sup>1</sup>, Batjargal Uyanga<sup>1</sup>, 김성수, 이재현<sup>1</sup>  
창원대학교 메카융합학과; <sup>1</sup>ERC, 창원대학교  
(hkchoi99@changwon.ac.kr<sup>†</sup>)

The powder composite and surface coating property were investigated for fabrication of nano composites based on metal materials during various media milling. This study has recently gained scientific interest and has worked for useful application of industrial field. We investigated for various mechanical alloying equipment and experimental conditions. The results of powder characteristics have been monitored by SEM, FESEM, XRD and PSA on a given grinding time. Furthermore, the forces applied to the balls in equipment were simulated by the discrete element method. It was observed that Cu/CNTs composites were achieved with experimental results via various mill types by mechanical alloy process in the case of Cu/CNTs mixed powders because the fabrication and the mechanical alloy properties of Cu/CNTs composite powder was affected by various types of mill. Copper powder during grinding process showed characteristic features of a ball mill, where morphology and surface property changes caused by a strong force is obtained.