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# Effect of Copper Content on the Dynamic Compressive Properties of Fine-grained Tungsten Copper Alloys

Wenqi Guo<sup>a</sup>, Yingchun Wang<sup>b,c,\*</sup>, Keyi Liu<sup>b</sup>, Shukui Li<sup>b,c,d</sup>, Hongyan Zhang<sup>b</sup>

<sup>a</sup>Institute of Engineering Technology, University of Science and Technology Beijing,  
Beijing 100083, China

<sup>b</sup>School of Materials Science and Engineering, Beijing Institute of Technology, Beijing  
100081, China

<sup>c</sup>China National Key Laboratory of Science and Technology on Materials under Shock  
and Impact, Beijing Institute of Technology, Beijing 100081, China

<sup>d</sup>State Key Laboratory of Explosion Science and Technology, Beijing Institute of  
Technology, Beijing 100081, China

**Abstract:** Experiments were conducted to evaluate the effect of Cu contents on the microstructures and dynamic compressive properties of three kinds of fine-grained tungsten copper (W-Cu) alloys with Cu contents in the range of 20~40 wt % prepared by isostatic cold pressing and infiltration. With the Cu content decreases from 40% to 20%, W grains grow slightly together with the W-W contiguity increasing and the homogeneity of microstructure improving. The dynamic yield strengths show an obvious increased tendency from 320MPa in 60W-40Cu alloy to 1100MPa in 80W-20Cu alloy. The yield strengths of the alloys show obvious strain rate strengthening effect. The three fine-grained W-Cu alloys exhibit good plasticity under compression with the dynamic critical failure strains of 0.6~0.85. The fracture mechanism is dependent on Cu content. The main failure modes are tearing of Cu phase, separation of W-W boundaries along with tearing of Cu phase, and failure of W shearing bands in 60W-40Cu, 70W-30Cu and 80W-20Cu alloys, respectively.

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