

Abstract Submitted  
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**Particle size effect in granular composite aluminum/tungsten<sup>1</sup>**  
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NESTERENKO, University of California, San Diego — Compressive dynamic  
strength and fracture pattern of high density Al-W granular composites with an  
identical weight ratio between Al (23.8 wt%) and W (76.2 wt%) and with different  
porosities, size and shape of W component were investigated at strain rate 0.001  
1/s. Samples were fabricated by Cold Isostatic Pressing. It was shown that dy-  
namic strength (107 MPa) of composites with fine W particles (<1 micron) was  
significantly larger than strength (73 MPa) of composite with the course W par-  
ticles (-325 mesh) at the same porosity 26%. More dense samples (porosity 15%)  
with course W particles exhibited higher strength of 175 MPa. Morphology of W  
inclusions had a strong effect on dynamic strength. Samples with W wires arranged  
in axial direction (diameter 100 microns) and porosity of the sample 16% with the  
same volume content of components demonstrated dynamic strength of 350 MPa.  
Dynamic strength and fracture pattern of composites was numerically simulated  
using computer code Raven.

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