

## INVESTIGATION OF THE ROLE OF AGE HARDENING ON THE ONE-DIMENSIONAL SHOCK RESPONSE OF COPPER-2WEIGHT% BERYLLIUM ALLOYS

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### **Abstract**

The Cu-Be alloy system offers an opportunity to investigate the role of age hardening on the mechanical response of a face centred cubic (FCC) system. The alloy system has been investigated in two conditions; solution treated where all beryllium remains in solid solution, and age hardened, where the material is strengthened by the precipitation of intermetallic particles. At 2 wt%, and between 700 and 900°C, Be remains in solid solution. By quenching from these temperatures, a supersaturated solid solution can be maintained, with quasi-static yield strengths of the order 460 MPa. An aging heat treatment of ca. 600°C, leads the material to precipitation harden, resulting in a yield strength in excess of 1000 MPa. In this presentation, we investigate the Hugoniot, dynamic shear strength and Hugoniot Elastic Limit in the stress range 2 - 14 GPa. Results are discussed in terms of the differing heat treatments.

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