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**Dynamic Characterization of Epoxy-Cast Al+Fe<sub>2</sub>O<sub>3</sub> Mixtures**

LOUIS FERRANTI, JR., NARESH THADHANI, Georgia Institute of Technology — Dynamic mechanical properties experiments were conducted on epoxy-cast Al+Fe<sub>2</sub>O<sub>3</sub> specimens using the classic Taylor anvil test at relatively low impact velocity (100m/s). Reverse Taylor anvil impact experiments were also conducted using a single stage gas gun by impacting a rigid anvil onto a stationary target at relatively high velocity (200 to 400 m/s). Dynamic deformation and fracture response of the epoxy-cast thermite were captured in real time utilizing high-speed photography. Strain, strain-rate, and stress were measured from the captured images. Plate-impact experiments were also performed to determine the P-V/V<sub>0</sub> compressibility. Postmortem analysis of recovered fragments was conducted using differential thermal analysis (DTA) to determine impact-induced material alteration. The presentation will describe the results obtained to date. Funding for this research was provided in part by AFOSR/MURI under grant No. F49620-02-1-0382; and by a graduate research internship grant (for L. Ferranti) provided by EGLIN/AFRL through contract No. F08630-03-C-001.

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