Abstract Submitted
for the SHOCK09 Meeting of
The American Physical Society

Shock Compression Response of Composites of THV and Ceramic Powders[1] CHRISTOPHER NEEL, NARESH THADHANI, Georgia Inst. of Technology, Materials Science Dept. — The shock compression response of polymer-ceramic composites is determined using parallel plate impact tests. PVDF stress gauges are used to determine the Hugoniot in the range of 2-8 GPa. The composites consist of ceramic powders of various sizes in a THV polymer matrix. The ceramic powders used are 1, 10, and 100 micron alumina and 10 micron ZrC. The composites are heterogeneous and porous to various degrees. Measured Hugoniot results are compared with those obtained from models. The comparisons reveal that the porosity has the dominant effect and it overshadows effects due to the size or density of the particles.

[1]This work was supported in part by ONR grant #N00014-07-1-0760 and DTRA grant # HDTRA-07-1-0018.

Christopher Neel
Georgia Tech Material Science Dept.

Date submitted: 26 Feb 2009 Electronic form version 1.4