Abstract Submitted
for the MAR06 Meeting of
The American Physical Society

Dynamic Response of Shock-Loaded Multi-Component Glasses[1]
C.S. ALEXANDER, W.D. REINHART, T.J. VOGLER, D.E. GRADY, L.C. CHHABILDAS, Sandia National Laboratories — Glass, in various formulations, may be useful as a transparent armor material. Fused quartz (SiO_2), modified with either B_2O_3 (13 % wt.) or Na_2O (15 % wt.), was studied to determine the effect on the dynamic response of the material. Utilizing powder and two-stage light gas guns, plate impact experiments were conducted to determine the effect on strength properties, including the elastic limits and plastic deformation response. Further, the effect of glass modification on known transitions to higher density phases in fused quartz was evaluated. Results of these experiments will be presented and discussed.

[1]Sandia is a multiprogram laboratory operated by Sandia Corporation, a Lockheed Martin Company, for the United States Department of Energy's National Nuclear Security Administration under Contract DE AC04-94AL85000.

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Date submitted: 04 Dec 2005 Electronic form version 1.4