

Abstract Submitted
for the SHOCK07 Meeting of
The American Physical Society

Shear strength and its variation according to structure in shock-loaded polyethylene JEREMY MILLETT, AWE, Aldermaston, NEIL BOURNE, University of Manchester, ERIC BROWN, GEORGE GRAY, Los Alamos National Laboratory — In a recent series of papers, we have made a study of the shock response of a number of polymers, whilst systematically changing their structure, for example side group size (polyethylene, polypropylene and polystyrene) or replacement of hydrogen atoms (polyethylene, polyvinylidene difluoride and polytetrafluoroethylene). In this study, we examine a single polymer, polyethylene in two structural forms – high molecular weight and cross-linked. In particular, the shock induced shear strength is determined, and the effects of structural variation noted.

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Date submitted: 23 Mar 2007

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