Abstract Submitted
for the SHOCK05 Meeting of
The American Physical Society

The Shock Hugoniot of the Intermetallic Compound, Ni3Al I. KNAPP, Cranfield University, J.C.F. MILLETT, Cranfield University, G.T. GRAY, Los Alamos National Laboratory, N.K. BOURNE, University of Manchester — Interest in the shock-induced mechanical response of the intermetallic material, Ni3Al lies in two areas. The first is in blade containment in the failure of jet turbine engines. As Ni3Al is the main strengthening phase in nickel based superalloys, the behaviour of these materials under impact conditions is of great importance. Secondly, from a more fundamental point of view, Ni3Al, with the ordered face centred cubic L12 structure, will possess a different response to shock loading to a simpler face centred cubic counterpart such as nickel. In this paper, we thus examine the shock-induced behaviour of Ni3Al, and compare it to the known response of pure nickel.

J.C.F. Millett
Cranfield University

Date submitted: 08 Apr 2005 Electronic form version 1.4