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Delayed Failure in a Shock Loaded Alumina G.A. COOPER, J.C.F. MILLETT, Cranfield University, N.K. BOURNE, University of Manchester, D.P. DANDEKAR, ARL — Manganin stress gauges have been used to determine the lateral stress in a shock-loaded alumina. In combination with known longitudinal stresses, these have been used to determine the shear strength of this material, behind the shock. The two-step nature of the lateral stress traces shows a slow moving front behind the main shock, behind which shear strength undergoes a significant decrease. Results also show that this front decreases markedly in velocity as the HEL is crossed, suggesting that limited plasticity occurs during inelastic deformation. Finally, comparison of measured shear strengths with other aluminas shows a high degree of agreement.

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