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Lateral stress evolution in Chromium Sulfide OREN PETEL, McGill University, Department of Mechanical Engineering, Montreal, QC H3A 0C3, Canada, GARETH APPLEBY-THOMAS, AMER HAMEED, Cranfield Defence and Security, Cranfield University, Shrivenham, Swindon, SN6 8LA, United Kingdom, ALEXANDER CAPOZZI, DAVID FROST, McGill University, Department of Mechanical Engineering, Montreal, QC H3A 0C3, Canada, PAUL HAZELL, School of Engineering and Information Technology, UNSW Canberra, University of New South Wales, Northcott Drive, Canberra, ACT 2600, Australia — In this paper the shock response of chromium sulfide, a cermet of potential interest as a matrix material for ballistic applications, has been investigated. Compacts with a Chromium:Sulfur ratio of 1.15:1 were investigated via the plate-impact technique. These experiments allowed the material to be loaded under a one-dimensional state of strain. Embedded manganin stress gauges were employed to monitor the temporal evolution of longitudinal and lateral components of stress. Comparison of these two components has allowed assessment of the variation of material shear strength both with impact pressure/strain-rate and time. Interestingly tentative evidence of what appeared to be an elastic-plastic transition was noted on the lateral traces, despite the absence of a lateral shock.

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