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ANFO Response to Low-Stress Planar Impacts MARCIA COOPER, WAYNE TROTT, ROBERT SCHMITT, Sandia National Laboratories, MARK SHORT, SCOTT JACKSON, Los Alamos National Laboratory — Ammonium Nitrate plus Fuel Oil (ANFO) is a non-ideal explosive where the mixing behavior of the mm-diameter prills with the absorbed fuel oil is of critical importance for chemical energy release. The large-scale heterogeneity of ANFO establishes conditions uniquely suitable for observation using the spatially- and temporally-resolved line-imaging ORVIS (optically recording velocity interferometer system) diagnostic. The first demonstration of transmitted wave profiles in ANFO from low-stress planar impacts using a single-stage gas gun is reported. The experimental stresses simulate the compressive wave conditions preceding detonation providing insight into dominant mesoscale processes. Distributions of particle velocity as related to mean prill diameters and observations of between-prill jetting are reported. Use of the measured distributions of particle velocity for collaboration with mesoscale model development and the statistically-averaged values for contribution to continuum model development is discussed. Sandia National Laboratories is a multiprogram laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.

Marcia Cooper
Sandia National Laboratories

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