

Abstract Submitted
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Method for pressing powdered explosives in target assemblies for gas gun-driven initiation experiments DAVID B. STAHL, STEPHEN A. SHEFFIELD, DANA M. DATTELBAUM, Los Alamos National Lab. — In order to obtain an equation of state (EOS) and initiation information for a powdered explosive at the lower density ranges, it is necessary to press the material into the gas gun target assembly. Pressed pellets can be built into targets at the higher densities where they have integrity or can be machined but are difficult or impossible to use at low densities. We have a need to employ multiple magnetic gauges to measure the EOS and initiation data on low density, powdered explosives such as ammonium nitrate (AN). We have designed a “half cell” target assembly that has a magnetic gauge membrane glued to a triangular shaped cavity which can be loaded from the cell side. The technique uses a miniature load cell to monitor the force on a pressing stemple that fits into the triangular cavity. A force vs. density curve can be obtained for the particular powder and stemple/cell combination. Using this, the powdered explosive can be loaded to the desired density by pressing in increments to a given force. After the cell is loaded, a cover is glued on to confine the sample. Examples of pressing AN into the target assemblies at different densities and the data obtained from the gas gun driven experiments will be shown.

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