THREE DIFFERENT STRUCTURAL REACTIVE MATERIAL (SRM) CASINGS UNDER EXPLOSIVE LOADING

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ABSTRACT

Recently, structural reactive materials (SRM) have been developed for possible uses in warhead applications. They show two different types of reactions: fine particle reaction (FPR) and impact induced reaction (IIR). This paper visually confirms the two types of reactions and attempts to obtain understanding of experimentally observed blast wave pressure records and establish numerical models to explain these reactions based on a set of collected fragments size distribution data. Fragments of three different structural materials (SRMs) were collected in a snow-packed, inert environment chamber and then the same SRMs were tested inside the same chamber in air without snow. Resulting blast wave pressures were compared against numerical simulations using the fragment size data. The simulations show fair prediction of FPR, but IIR is still beyond the reach of predictions.