

BLAST ANALYSIS OF REACTIVE MATERIAL LINERS

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Abstract:

A programme of work will be presented to assess the blast enhancement from various reactive material compositions through small-scale experiments and modelling studies.

A set of 50g PE4 charges were fired at the centre of an enclosed chamber in three configurations: as bare charges, inert steel cased charges and various reactive material composition cases. High Speed Video (HSV) and pressure measurements were recorded for each test. A second set of tests were conducted in a similar setup, but with the chamber filled with snow to allow soft capture of the fragments and reactive material powders.

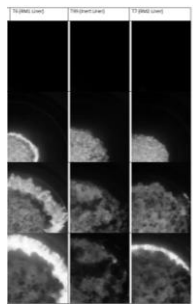


Figure 1: An example of HSV from three experiments

The experiments showed a clear difference between each of the configurations in terms of Quasi-Static Pressure and pressure evolution vs time from the pressure measurement and case material behavior from the HSV. The particles collected in the snow soft capture were analysed for particle size distribution and has shown to be a function of the reactive material.

The test results were analysed and used to validate a model using the EDEN hydrocode for these reactive materials. This validated model was then used to generate a Fast Running Engineering Model (FREM) for use within blast lethality codes.

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