

Abstract Submitted
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Small-scale dynamic confinement gap test MALCOLM COOK, QinetiQ — Gap tests are routinely used to ascertain the shock sensitiveness of new explosive formulations. The tests are popular since that are easy and relatively cheap to perform. However, with modern insensitive formulations with big critical diameters, large test samples are required. This can make testing and screening of new formulations expensive since large quantities of test material are required. Thus a new test that uses significantly smaller sample quantities would be very beneficial. In this paper we describe a new small-scale test that has been designed using our CHARM ignition and growth routine in the DYNA2D hydrocode. The new test is a modified gap test and uses detonating nitromethane to provide dynamic confinement (instead of a thick metal case) whilst exposing the sample to a long duration shock wave. The long duration shock wave allows less reactive materials that are below their critical diameter, more time to react. We present details on the modelling of the test together with some preliminary experiments to demonstrate the potential of the new test method.

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