

Abstract Submitted
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A view on the functioning mechanism of EBW detonation - Part 3: Explosive Initiation Characterisation ELIZABETH LEE, RODNEY DRAKE, JOHN RICHARDSON, AWE Plc — This paper is the third of three looking at the initiation of PETN in an exploding bridgewire detonator. The energy flow from the fireset through the bridgewire has been characterised and the probable input to the low density PETN determined. These earlier studies showed that shock initiation remained a credible mechanism for an exploding bridgewire detonator. This final set of experiments was designed to compare and contrast the shock initiation of low density PETN, by both a slapper detonator and a shock sensitivity test, with exploding bridgewire initiation. The shock sensitivity of low density PETN has been studied and the run distance for low pressure input shocks examined. The function and lost times of slapper and EBW detonators were compared to one another to allow the credibility of a shock initiation mechanism to be further assessed. The results of the experimental work will be presented, together with a potential step-by-step initiation mechanism for a PETN exploding bridgewire detonator. The proposed mechanism is based on the energy flow through the detonator system and the affect of varying the input energy on the detonator function time.

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