

DIFFERENCES OF NEAR FIELD AND FAR FIELD EFFECTS IN A TUNNEL DEPENDING OF THE HE COMPOSITION

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ABSTRACT

The blast effects in the near field and the far field have been evaluated in a tunnel with 5 m diameter and 200 m long for several HE compositions, especially Plastit, PBXN5, TNT and NM/Al. The weight of the booster is the same for a given charge weight. 1 kg and 5 kg cylindrical charges with L/D equal to 1 are tested and compared. The HE charges are placed in the center of the reinforced tunnel and detonated from above.

Static and reflected pressures are measured at different distances with piezoelectric and piezoresistive gauges. The shock velocities are obtained in the tunnel from optical detectors, usually applied for artillery projectile velocity measurements. The experimental results are presented and compared. This study highlights opposite behaviors in the near field and the far field, which can be associated with the duration of post-combustion processes, observed with high speed camera.