

THE INFLUENCE OF PRIMER SIZE ON EXPLOSIVE PERFORMANCE

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ABSTRACT

A joint research programme conducted by BHP Central Research Laboratories and Du Pont Wesfarmers Pty Ltd examined the effect of the size of cast primers on the run up and steady state detonation velocities of ammonium nitrate based explosives as a function of blasthole diameter. Both continuous and point to point velocity of detonation measurement techniques were used. The field trials examined a number of the Du Pont HDP series of primers in conjunction with ANFO, emulsion and watergel explosives. Results indicate that the run up velocity of 187mm diameter ANFO charges is negligible using cast primers as small as 1509. However, emulsion and watergel explosives did exhibit run up in both 187 and 311mm diameter blastholes, independent of the size of primer. This could last from 7 to 10 blasthole diameters.