

BLAST PARAMETERS FROM CYLINDRICAL CHARGES DETONATED ON THE SURFACE OF THE GROUND

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Existing data for detonations of cylindrical charges on the ground surface are not extensive enough to develop prediction curves and equations. In order to gather more data we run an experimental program with elongated charges. More than 100 rounds were fired and blast data obtained from more than 1200 records. Charges were placed in a vertical, a horizontal and a 60 degree inclined position. Initiation point was at the end in line with the 0 degree direction. Moving clockwise we have 9 blast lines at 0, 22.5, 45, 67.5, 90, 112.5, 135, 157.5, 180 degrees to the ground zero point. Three different charge masses (0.016, 0.128, 1.024 kg) were tested at identical test arrangement in order to check similarity. Measurements were made in a wide range of scaled standoff distances Z from 0.5 to 32 m/kg- $1/3$.

As a result tables and diagrams of scaled side-on blast parameters are available for time of shock front arrival, shock front overpressure, overpressure impulse and positive duration for cylindrical RDX explosives having length to diameter ratios of 1 and 5.

Similarity proofed well at a charge mass ratio of 1:64. Largest overpressure does not occur in the direction of the charge face with greatest presented surface area in case of unsymmetrical initiation.

Directional effects are much higher than reported before. Even the far field (1 psi range) errors of about a factor of 2 (100 percent) in the blast parameters may be induced by neglecting the charge shape.