EXPERIMENTAL STUDY ON EFFECT OF CONFINEMENT ON BLAST PRESSURE ATTENUATION OF IED

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In case of ground burst, a part of explosive energy is transmitted to earth and rest is reflected back in air. The magnitude of hemispherical diverging blast wave produced in atmosphere due to the explosion of improvised explosive device (IED) on ground surface depends upon the quantity of explosive used, nature of ground surface and the confinement around the point of burst. The increased terrorist activities has drawn attention to develop new methods to confine effects of IED blast to small region and minimize the damage. One simple method is to enclose the IED with cylindrical container and cover the upper face of the cylinder. The cylinder and cover are generally made of non fragmenting polymer material like Kevlar. The advantage of Kevlar is that in addition to blast pressure attenuation it also arrests the fragments of IED.

An experiment was conducted to evaluate the blast pressure attenuation efficiency of one such system made of a non fragmenting cylinder of diameter and length 0.5m having 22kg weight covered with multiple layers of non fragmenting polymer material.

The paper presents the blast pressure measured at 2, 5 and 10m from the point of detonation of 0.150kg TNT charge confined by using non fragmenting cylinder with its upper face covered. The PCB make piezoelectric blast pressure pencil probes model 137A23 were used to measure the blast pressure. The results obtained are compared with blast pressure measured without confinement. The system is found very effective in blast pressure attenuation.