

RESPONSE OF MATERIALS FOR PERSONAL PROTECTION AGAINST BLAST

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Considerable attention has been paid to the characteristics of material which can be used for the reduction of the deleterious penetration effects caused by the impact of high velocity projectiles (which has led to the development of a wide range of body armor assemblies). However, there has been little investigation of the requirements that must be satisfied by materials if the effect of blast wave loading on personal is to be mitigated.

A two inch diameter shock tunnel facility has been calibrated to produce a shock signature which simulates a free air blast wave. A program of research has been instigated involving a wide range of different materials which could be incorporated in a new generation of blast protective suitings.

The initial phase of the schedule has been the investigation of the response of these materials when fixed unsupported across the tunnel section and when held against an instrumented rigid end-cap. These two configurations represent the extremes of material support conditions, and bracket the real case where the suiting is supported by the wearer. Analysis of the results of this material comparison based on reflected and transmitted impulse levels yielded a material ranking order of performance. The second phase of the program currently in hand is the investigation of material response in conjunction with flesh and body organ simulants.