NEAR FIELD BLAST LOADING - EXPERIMENTAL ISSUES IN DETERMINATION OF REFLECTED PRESSURE

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ABSTRACT

Blast loading of a rigid structure positioned in close vicinity of a detonating explosive charge is a bit more difficult to quantitatively describe compared to the incident blast loading at longer distances. Various phenomena including those related to the detonation processes as well as those related to measuring and acquisition system affect the final measured blast wave properties.

In this contribution we summarizes our experience with blast wave profile measurement of 50, 75, 250 and 500 g charges of Semtex 1A plastic explosive at 60, 75, 100 and 150 cm standoff distances. Seven different sensors were tested including Kistler (211B), PCB (113B22), Endevco (8511A20) and PVDF foil gauge (5x5 mm). Four sensors were mounted at the same time to steel base plate and charge was set off directly above the sensors. The issues examined included sensor setup, comparison of blast wave profile obtained by various sensors during the same shot, shot to shot variation obtained by the same sensors and an influence of a sensor range.