SMALL SCALE EXPERIMENTAL STUDIES OF DETONATION BLAST EFFECT ON SOLID STRUCTURES

J.-P. Guillemin[1], S. Phelep[1]

[1]*Davey Bickford, Le Moulin Gaspard, 89550 Héry, France*

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Nowadays, two principal ways are often investigated to determine experimental effects of detonation shock wave on solid structures. The first consists in a real scale experimental setup. In this case, an important amount of secondary explosive is needed to simulate pyrotechnic charges. This configuration leads for safety and organization reasons to a long time and expensive costs of realization. The second setup consists in a small scale configuration that uses a non-pyrotechnic material model to simulate a shock wave. Even if this strategy may be interesting in terms of cost and time, detonation scheme may be not reached and errors may be done on the experimental result interpretations. In regard of these observations, the aim of this paper is to present solid structure deformations generated by a real pyrotechnic blast effects in a small scale configuration. At first, comparison between these three methods will be presented, then small scale experiments using secondary explosives will be detailed and finally experimental results obtained on different solid structures will be observed.