

# EXPLOSION OF GAS AND TNT : TNT-EQUIVALENCE PRESSURE

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## Abstract

In this paper a synthesis of the characteristics of consecutive blast waves after the detonation of gas air mixtures is presented.

This study follows the previous work in which we reported experiments carried out at small scale and transferred to a large scale by application of Hopkinson's scaling laws. These tests were performed with detonating gas air mixtures and the characteristics parameters of the resulting shock waves were compared with those of a TNT charge. The simulations achieved were in good agreement with experimental results.

In this work, we propose to make a point of principal experimental results obtained at different scales available in the literature. For that, the characteristics of the blast wave in terms of overpressure are compared.

This comparison makes it possible to demonstrate the significant problem of the definition of TNT equivalency according to the scale at which the tests are carried out and according to the overpressure of the blast wave. The sensitivity of TNT equivalency to the reduced distance is clearly confirmed as it was demonstrated by Dewey (2005).