

# **SHOCK SENSITIVITY OF VARIOUS PERMISSIBLE EXPLOSIVES**

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## ABSTRACT

The effect on an explosive column of the sharp transient stress waves generated during the earlier detonation of adjacent blastholes is of paramount importance to explosives users. Some explosives will sympathetically detonate under these stresses. Others may suffer a transient desensitization, arising from a temporary increase in the density of an explosive beyond certain limits and persisting until the explosive mass relaxes back to the original density. Some explosives are so adversely affected by these stresses that the product suffers immediate and permanent loss of sensitivity. These effects can be clearly seen while blasting in tough conditions such as burn cuts or wedge cuts and in materials, such as coals, that propagate shock waves well.

Various experimental techniques have previously been used to simulate the physical environment of the explosive charge during the detonation of a round. For this study, a series of tests was carried out under actual blasting conditions by means of blastholes drilled into very homogeneous sand. A systematic evaluation of the various field blasting parameters helped to establish the parameters for the testing procedures. Thus the relevance of this work to the expected field performance is emphasised.

Explosives from three generic types (One Dynamite , Three Watergels and Two Emulsions), were used under the same blasting conditions. A standard explosive charge of 800 grams of each type of explosive was used to generate the stress waves. The ability of the various explosives to withstand donated blasthole pressure was quantified with respect to blasthole separations and interhole delays.