

EVALUATION OF MUNITION SAFETY AGAINST PROJECTILE ATTACK

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Taking the explosive KS57 as example, an attempt is made to predict critical reactions after projectile impact on cased samples of this explosive.

Hydrocode simulations are used to evaluate pressure time characteristics during impact and to compare it with measured critical diameter and detonation thresholds of the explosive to arrive at criticality classifications of the event, given the utilized confinement.

Three classes of shock front levels can be stated:

1. One, where the pressure always is lower than the critical detonation threshold over the full critical diameter.
2. One, where the detonation threshold is overstepped over a certain area of the critical diameter region.
3. And one, where the pressure is higher than the detonation threshold over the whole critical diameter.

The method allows a fast estimate on the quality of protection of the envisaged charge confinement against projectile attack. As an additional result, a statement on the effects of blunt fragment impact is given. Due to the large impact area, the blunt fragment requires high protection levels for the explosive because the resulting shock front in most cases oversteps the critical diameter.

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