

BLAST WAVE PARAMETERS AND TNT EQUIVALENCY OF IMPROVISED EXPLOSIVES: UREA NITRATE

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The effect of blast wave from explosion of high explosive is a subject of interest in many areas. In military technology it is essential to understand the effects of various compositions to focus the design of the charge towards maximum efficiency against particular type of a target. In designing of protective structures blast wave parameters are needed to plan for suitable resistance or mitigation measures. In the unfortunate event of terrorist attack knowledge of blast wave parameters together with residue analysis helps the forensic teams to draw the entire picture of the event.

It is clear from the above that the blast wave parameters of explosives are quite important in many aspects of blast wave effects evaluation. Real experimental data are further important for validation of the air blast effects computed by numerical methods. The blast wave data as well as the TNT equivalents are available for usual military explosives but are quite scarce for homemade explosives. It is therefore in our opinion important to collect such data and provide them to those working on computational modeling of protective structures.

In this contribution we present experimental blast wave parameters of small scale bare charges of urea nitrate, their comparison to small scale charges of TNT and calculation of TNT equivalency based on maximum overpressure and impulse of positive phase of the blast wave.