

## **MODELLING EFFORTS OF VARIOUS EXPLOSIVE TEST ITEMS IN CLOSED ENVIRONMENT**

Zekeriya Taner KAYA, Mehmet Sarper YAVUZ

*TÜBİTAK SAGE (The Scientific and Technological Research Council of Turkey, Defence Industries Research and Development Institute), Ankara, Turkey*

**Keywords :** Internal Detonation - Aerobic Combustion - Quasistatic Pressure - Numerical Modelling and Validation

In this study, numerical modelling of detonation and blast propagation of various explosives (TNT, COMP-B, C-4, Aluminized PBX) were performed by using hydrocode simulations in various closed environments. Internal detonation experimental data (6 kg) obtained at TUBITAK SAGE and experimental data (5-10 kg) obtained from literature for different closed test rooms were analyzed by hydrocode simulation to assess quasistatic pressure and impulse. The obtained analyses results were compared with experimental data for performance evaluation. Moreover, results were further investigated to understand the effect of aerobic combustion on pressure and impulse behavior of explosives in the case of internal detonation. Numerical modelling results showed that aerobic combustion has significant effects on the performance of explosives, which is in agreement with experimental results.