

EXPERIMENTAL GAS-DYNAMIC STUDY OF DIVERGING DETONATION WAVE INTERACTION

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Evolution and propagation of detonation process in HMX-based high-explosive simultaneously actuated by four ignitors were experimentally studied. Cylindrical columns of PETN-based and RDX-based HEs were used as ignitors. The work describes the evolution of detonation front shape observed when varying HMX-based HE thicknesses from 5 to 30 mm. Detonation boost-up portions of HMX-based HE were determined for the ignitors of different power, and boundaries of the transition of regular reflection of detonation waves to unregular one were identified. The presented experimental setup allows achieving both steady-state and transient HE detonation regimes. Therefore, it can be used to calibrate numerical models of HE detonation considering explosive transformation kinetics.
