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Simulation of attenuation regularity of detonation wave in PMMA WEI LAN, HU XIAOMIAN, Institute of Applied Physics and Computation Mathematics — Polymethyl methacrylate (PMMA) is often used as clapboard or protective medium in the parameter measurement of detonation wave propagation, due to its similar shock impedance with the explosive. Theoretical and experimental research show that the pressure of shock wave in condensed material has the regularity of exponential attenuation with the distance of propagation. Simulation of detonation wave propagation in PMMA is conducted using a two-dimensional Lagrangian computational fluid dynamics program, and results are compared with the experimental data. Different charge diameters and different angles between the direction of detonation wave propagation and the normal direction of confined boundary are considered during the calculation. Results show that the detonation wave propagation in PMMA accords with the exponential regularity of shock wave attenuation in condensed material, and several factors are relevant to the attenuation coefficient, such as charge diameter and interface angle.

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