STUDY OF THE INFLUENCE OF THE STRUCTURE AND COMPOSITION OF THE CHARGE OF CONDENSED EXPLOSIVE ON THE STRUCTURE OF THE DETONATION WAVE

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The relevance of studying detonation processes in condensed explosives (HE) is due to the need to improve the efficiency and controllability of energy release for use in various applications. One of the key factors affecting the characteristics of the detonation wave is the charge structure, including the method of its manufacture and the presence of additives.

The experimental study was carried out using the laser heterodyne technique (LHM) [1], which allows recording the mass velocity profile with high time resolution at the contact boundary of the charge and the barrier, transparent to laser radiation.

In this paper, an experimental study of the mass velocity profile during detonation of a TNT charge, pressed, cast and pressed with the addition of single-wall carbon nanotubes, is carried out. The figure shows the results of the profile study for TNT charges with different manufacturing methods; PMMA (polymethyl methacrylate) was used as a barrier. Similar studies were carried out in [2], but using a charge of a smaller diameter. In work [3], electrical conductivity profiles were obtained during the detonation of a TNT charge with different structure, composition and density, and different kinetics of chemical reactions were shown for pressed and cast charges.

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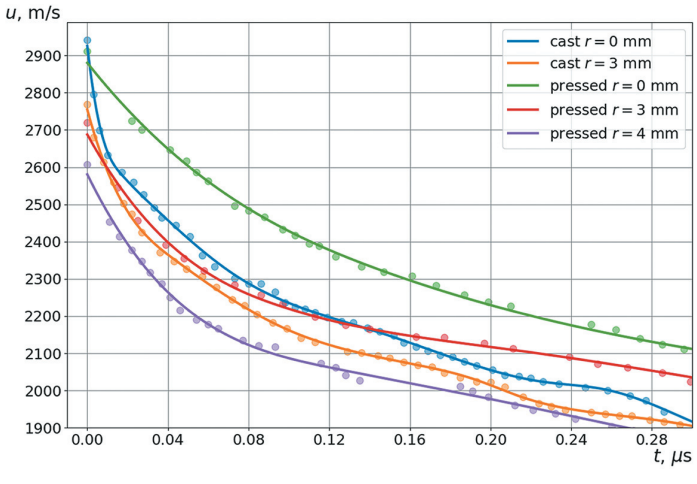

Fig. 1. Mass velocity profiles for two different charges obtained with a PMMA window

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