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The experimental study of shock wave compressibility of fiberglass and carbon fiber.[1] VALENTINA MOCHALOVA, Institute of Problems of Chemical Physics RAS, FSBI SSC RF ITEP of NRC Kurchatov Institute, ALEXANDER UTKIN, Institute of Problems of Chemical Physics RAS — By the using of a laser interferometer VISAR the experiments on investigation of shock compressibility of heterogeneous anisotropic materials fiberglass and carbon fiber were conducted. The shock wave profile and the shock wave velocity of that materials were obtained in each experiment. For fiberglass the two-wave configuration almost in the entire pressure range was recorded for both orientations of the fibers. But the amplitude of precursor along the fibers is much higher than the amplitude for the transverse direction. In carbon fiber the structure of shock waves significantly depends on the fibers orientation - the two-wave configuration is recorded only for longitudinal direction in the investigated range of pressures. From the obtained experimental data Hugoniots of these anisotropic materials for two orientations of fibers were plotted. Hugoniot of carbon fiber is different for two orientations of fibers. There is a tendency to their convergence with the pressure increasing. For fiberglass – they are the same for both orientations. Also a study of spall strength was conducted. It was shown for both materials that the value of spall strength for parallel orientation of the fibers is much higher than for perpendicular orientation.

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