Sound Velocities in D16 Aluminum Alloy within 15...118 GPa Pressure Rage

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The paper presents the experimental setup and rezults of shock-wave study of D16 aluminum alloy. The results of the series of experiments on measuring both longitudinal and volumetric sound velocities in the D16 solid phase under single shock compression within 15...118 GPa pressure range are set forth and compared with those published earlier. General dependences that describe how the longitudinal and volumetric speed velocities change with density behind the shock-wave front are determined. The dependences of Yung, s modulus, bulk modulus of compression, shear modulus, and Poisson ratio on the stress at the shock-wave front in the region of the solid phase of compression are also obtained.