

SHOCK COMPRESSIBILITY OF AK6 ALUMINUM ALLOY

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One of the main sources of information used in the construction of the equations of states is experimental data on the shock compression of continuous substance, which determine the relationship between pressure, density and energy – the shock adiabat. Studies of the impact compressibility of materials play a key role in understanding the behavior of substances under the extreme conditions characteristic of dynamic loading [1].

This paper presents the results of shock-wave experiments to determine the shock compressibility of AK6 alloy, which belongs to the class of deformable aluminum alloys base on the Al-Cu-Mg-Si-Mn system. Explosive and ballistic loading devices were used to create shock waves. The shock adiabat of the alloy in the pressure range from 5 to 60 GPa was plotted using the obtained data. The obtained results were compared with the adiabatics of foreign analogs AK6 (alloy 2117) [2, 3] and domestic aluminum alloys (AMz, AMg6, D16, AD1) [4], as well as with the adiabat numerically calculated by the method of additive composition of adiabatics of alloy components [5].

References

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