

Abstract Submitted
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Peculiarities of Damage Nucleation Stage at Intensive Loading of Copper OLGA IGNATOVA, RFNC-VNIIEF — The models of shear and spall strength, which are currently used, are semi-empirical, and they take no account for some factors occurred at microlevel. Though these factors can significantly influence on the processes of deformation, destruction and compaction of materials. One of these factors is state of material after passing of shock and quasi-isentropic waves of compression in this material. Loading of copper by compression waves (shock and quasi-isentropic waves) causes significant growth of shear and spall strength. In some cases, during damage growth in extension wave, which occurs after shock or quasi-isentropic wave of compression ($P=30$ GPa), it is possible to observe localization of damage zones alternating with zones, which have no visible damages. This new phenomenon, which is observed at comparatively small damages ($\omega \sim 0.1 \div 0.2$), has no a single physical explanation yet. The experimental setup for loading materials by shock or quasi-isentropic waves of compression, which is followed by release to gap, allows to observe both the damage nucleation and the process of compaction of damaged material by compression wave.

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