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Influence of preliminary loading on formation of adiabatic localized shift in copper VICTOR PUSHKOV, ALEXEY YURLOV, ALEXEY PODURETS, ANDREW TSIBIKOV, Russian Federal Nuclear Center - VNIIEF, CONSTANTINE NOVIKOV, Russian Federal Nuclear Center - VNIIEF, MAXIM PUKHOV, Russian Federal Nuclear Center - VNIIEF — It is revealed (for example, by G.T.Gray III, Q.Xue) that formation of strain localization centers is very sensitive to the initial density of defects and peculiarities of the basic microstructure. At the same time, the other experts revealed in their works that the material ability for strain hardening plays an important role in localization of shear bands. Presently this process is still under active study. This paper is devoted to results of investigation of localized shift in as-received copper, and which was subjected to preliminary quasi-isentropic shock loading by the pressure of ~ 30 GPa. Tests were performed with hat-shaped samples by the SHPB method. The authors present estimation of quantitative characteristics of localized shift in tested materials (shear stress, relative shear strain, shear band width, relative strain rate in shear band). The paper includes data of metallographic investigations of the tested samples. Also the authors made an attempt of numerical simulation of stress field change during formation.

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