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Harnessing modified manganin technique to study processes of explosive transformation in pyrotechnic compositions SERGEI BATALOV, ZAKHAR GORELIK, SERGEI KISELEV, ALEXANDER SYRTSEV, RFNC-VNIITF, Russia — The paper reviews results of the experimental study of explosive transformation in pyrotechnic compositions with modified manganin technique. In particular, experimental data on pressure profiles recorded with tiny manganin sensors are cited to characterize the effect of parameters of the loading pulse, dispersion and density on peculiarities of explosive transformation in studied pyrotechnic pieces under shock-wave initiation. In the paper are shown the experimental pressure profiles, characteristic for processes of explosive transformation of extended delay. The experimental results prove the effect of density variation of the specimens under study on the process of the explosive transformation. It is felt that for given range of pressures of the incoming shock wave the difference of the explosive transformation history, at equal parameters of loading pulse, is caused also by different dispersion of the initial powder and final porosity of studied specimens. The experimental results provide support for possibility of use of tiny manganin and constantan sensors in studying processes of explosive transformation of pyrotechnic compositions under initiation by divergent shock waves of large curve front and slumping pressure profile.

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