Numerical simulation of experiments to estimate the critical diameter for explosives based on TATB using synchrotron radiation

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The paper presents the results of a study of the detonation propagation process in cylindrical explosive samples based on triaminotrinitrobenzene (TATB). In the experiments of LIH SB RAS by illuminating samples of various diameters with synchrotron radiation, determined the critical diameter for the explosive composition, and obtained data on the depth of detonation attenuation. Numerical simulation of experiments was carried out taking into account the detonation kinetics for an explosive composition based on TATB. The kinetic constants that best describe the experiment were selected.