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Use of Microwave Technique for Study of Isentropic Detonation Products Expansion EVGENY BOGDANOV, VLADIMIR BELSKY, MIKHAIL ZHERNOKLETOV, ANATOLY MIKHAYLOV, ALEXEY RODIONOV, ALEXANDER SEDOV, Russian Federal Nuclear Center - VNIIEF 607190, Sarov, Nizhniy Novgorod reg., Russia, RUSSIAN FEDERAL NUCLEAR CENTER - VNIIEF 607190, SAROV, NIZHNIY NOVGOROD REG., RUSSIA TEAM — Application of the microwave technique for research of explosives and their detonation products can give a number of advantages as compared to the other experimental techniques. This technique makes it possible to perform a continuous recording of the shock and detonation waves motion directly in explosive. A significant advantage of the technique consists in absence of influence on investigated process, because there are no any sensors, optic fiber etc. in an explosive volume. The microwave technique was used for isentropic detonation products expansion study of HMX/TATB-based explosive compound. For determination of states on the expansion adiabat of detonation products, the experimental series was conducted. In these experiments we recorded time dependences of the shock wave velocities in dielectric microwave-transparent barriers, which were in contact with explosive samples. A low power 94 GHz quadrature interferometer was used. The conducted experiments showed that the use of microwave technique gives a big amount of interesting experimental data with a considerable research simplification.

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