

## SPACE PROPULSION SYMPOSIUM (C4)

Special session: Thematic Workshop with Professionals and Students (5)

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Moscow Aviation Institute (National Research Institute, MAI), Russian Federation,  
zarankevich@yandex.ruFIRE TEST OF 500 NEWTON BIPROPELLANT THRUSTER WITH PROPELLANT HYDROGEN  
PEROXIDE AND KEROSENE.**Abstract**

A 500 Newton bipropellant thruster with propellant highly concentrated hydrogen peroxide (90% during the testing) were investigated: - ignition process; - operating process in the combustion chamber at the different values of mixture ratio; - boundaries of stability of the combustion in the combustion chamber. Ignition of propellant components in the combustion chamber has been reliable. Main regime of engine thrust was achieved after 0.1 s after valve opening. The thermal condition of the combustion chamber wall was found satisfactory. The paper shows that the possible cause of irregular heating of the wall was the unequal distribution of the flow of propellants in the combustion chamber. The analysis of obtained experimental data with mathematical model of wall combustion chamber thermal state showed that after 90 s the temperature reached 1000°C.