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STUDY OF IGNITION TRANSIENT IN 2M DIAMETER SEGMENTED SRM

Abstract

In order to investigate the flame jet of micro-rocket igniter, flame spreading in the segmented gap and development of the burning surface in the Fwd-finocyl and Aft-finocyl, a numerical analysis based on ignition transient model was established in a large segmented SRM(solid rocket motor). The numerical results indicate that the inner flow field of chamber is stable, and the abnormal pressure oscillation is not occurred during the ignition transient, the influence of initial stage flame shock for the insulation of segmented structure is slight after the motor firing, but the time of all grain surface burning of Aft-finocyl is too longer in the whole time of flame spreading. Compared with the ground experiment results of the full-scale segmented SRM, the simulation results show that ignition equilibrium pressure, time of ignition pressurization and pressure gradient are in good agreement with experiment results.