

Possibility of increasing a specific pulse of liquid-propellant rocket engine through addition of inert helium gas into the combustion chamber

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The paper presents calculation results for specific pulse of liquid-propellant rocket engines (LPRE) through addition of helium in the propellant systems, i.e. N_2O_4 + unsymmetrical dimethylhydrazine, liquid O_2 + kerosene, liquid O_2 + liquid H_2 , liquid F_2 + liquid H_2 . The article shows that for the first two propellant systems (N_2O_4 + unsymmetrical dimethylhydrazine, liquid O_2 + kerosene) an addition of helium under definite conditions results in increase of the specific pulse.

Keywords: *liquid-propellant rocket engine, helium addition to LPRS loop, increase of specific pulse, oxygen-kerosene propellant, helium.*

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