THE EFFECT OF DETONATION NANODIAMOND ON THE COMBUSTION PARAMETERS OF MODEL SOLID FUEL COMPOSITIONS

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Abstract: Metal-free solid fuel compositions that do not have condensed combustion products are characterized by combustion instability. Refractory metal compounds are used as combustion stabilizers. It reduces the specific impulse and leads to the appearance of condensed combustion products. Allotropic modifications of carbon are flammable and can burn to gaseous products. In this work, the effect of detonation nanodiamond on the combustion of model solid fuel compositions containing a nitroether combustible binder with oxidizing agents and energetic fillers of various chemical structures has been investigated. The relationship between the effectiveness of the influence of detonation nanodiamond on the ballistic characteristics of solid fuel compositions and the chemical structure of the components included in their composition is shown.

Keywords: metal-free fuel compositions; combustion instability; combustion stabilizers; detonation nanodiamond; ballistic characteristics of solid propellant compositions

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Table Caption

Effect of detonation nanodiamond on ballistic characteristics of fuel compositins

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