

عنوان مقاله:

Ti-alloys: Potential nano-modifier for Rocket Propellants

محل انتشار:

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خلاصه مقاله:

Composite solid propellants were prepared with and without nano-alloys (Ti-Co, Ti-Ni, Ti-Zn), where nano-alloys used as catalyst. These nano-alloys are prepared by hydrazine reduction method. Catalytic properties of these nanomaterials were measured on Ammonium perchlorate/hydroxyterminatedpolybutadiene propellant by thermogravimetry analysis and differential thermal analysis. Both experimental results show enhance in the thermal decomposition of propellants in presence of nano-alloys. In this differential thermal analysis method experiments had done in 3 heating rate $\dot{\alpha}_1=5$, $\dot{\alpha}_2=10$, $\dot{\alpha}_3=15$ degree on minute. Independent to model free; calculation of activation energy of high temperature decomposition step was done by using following kisinger equation. Burning rate of propellants is also calculated.

کلمات کلیدی:

Activation Energy, Ammonium perchlorate, Burning rate, Propellants, Thermal decomposition

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