

Supplementary Materials

Combustion Characteristics of HTPB-Based Hybrid Rocket Fuels: Using Nickel Oxide as the Polymer Matrix Pyrolysis Catalyst

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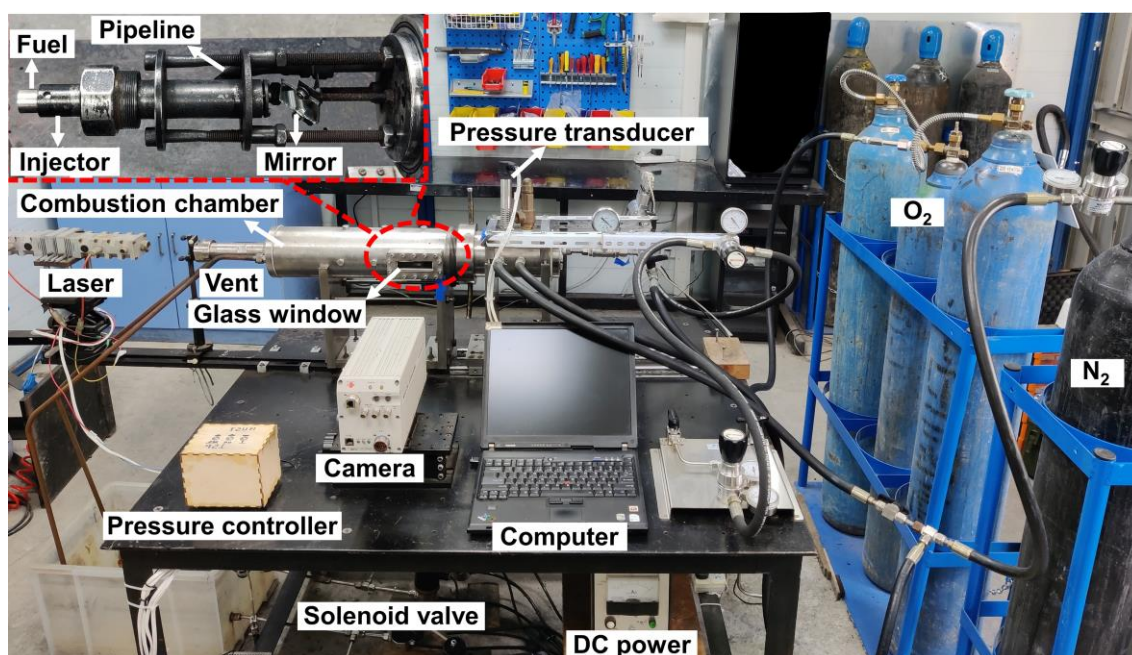


Figure S1. The physical picture of the 2D-radial hybrid burner [31].

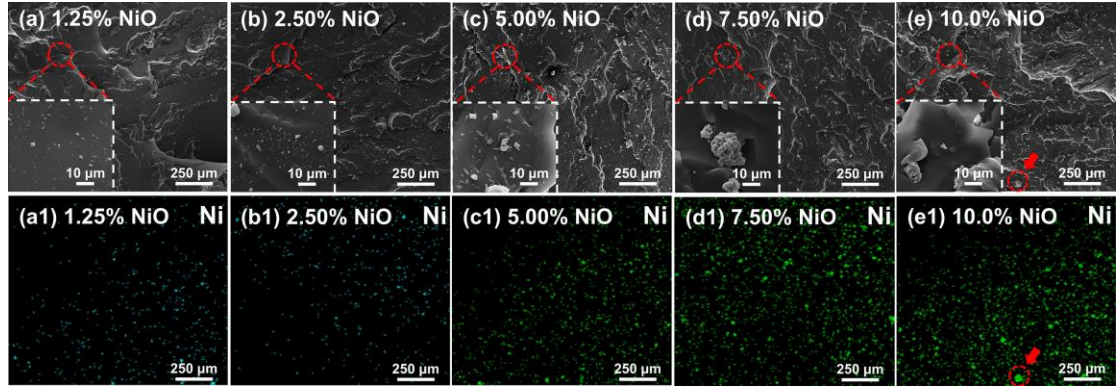


Figure S2. The surface morphology of the NiO-loaded fuels. (a) - (e) SEM images of the NiO-loaded fuels; (a1) - (e1) EDS mapping images of the NiO-loaded fuels

Table S1. Thermal conductivity of the pure HTPB and NiO-loaded fuels.

Formulation	Thermal conductivity, W/mK
Pure HTPB	0.19763
1.25% NiO	0.20480
2.50% NiO	0.20725
5.00% NiO	0.20723
7.50% NiO	0.20840
10.0% NiO	0.21070

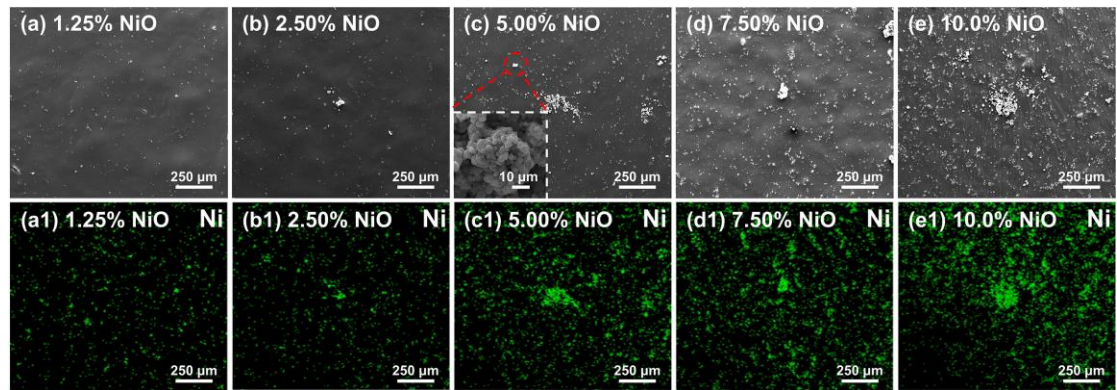


Figure S3. Fuel surface features of the NiO-loaded fuels after combustion termination. (a)-(e) SEM images of the NiO-loaded fuels; (a1)-(e1) EDS mapping images of NiO-loaded fuels.