aerospace

MDPI

Article

Evaluation and Performance Optimization of a Hydrogen Peroxide-Based Green Monopropellant Thruster for Steady-State Operations

Uğur Kokal [1,*], Mustafa Baysal [2], Nur Ber Emerce [3], Yiğit Yıldız [4], Arif Karabeyoğlu [5], and İbrahim Özkol [1]

[1] Istanbul Technical University, Aeronautics and Astronautics Engineering, Istanbul 34467, Türkiye; kokal20@itu.edu.tr (U.K.); ozkol@itu.edu.tr (İ.Ö.)
[2] DeltaV Space Technologies, Istanbul 34906, Türkiye; mbaysal@deltav.com.tr
[3] Koç University, Chemical Engineering, Istanbul 34450, Türkiye; nemerce19@ku.edu.tr
[4] Istanbul Technical University, Metallurgical and Materials Engineering, Istanbul 34467, Türkiye; yildizy16@itu.edu.tr (Y.Y.)
[5] Koç University, Mechanical Engineering, Istanbul 34450, Türkiye; akarabeyoglu@ku.edu.tr
* Correspondence: kokal20@itu.edu.tr; Tel.: +90 5554731818

1. Supplementary Information

1.1. Catalyst Bed Packing Process and Initial Catalyst Bed Pressure Loss Setting Experiments

Excel file, catalyst_bed_packing.xlsx, contains dataset for Figure 3, involving dP Chamber, Thrust, and Isp measurements for three dP values.

1.2 Pellet Size Experiments

Excel file, pellet_size.xlsx, contains dataset for Figure 6, involving dP Chamber and Thrust measurements for three pellet sizes.

1.3 Bed Load Experiments

Excel file, bed_load.xlsx, contains dataset for Figure 7, involving Chamber Pressure and Thrust measurements for two bed load values.

1.4 Initial Preheating Temperature Experiments

Excel file, initial_temperature.xlsx, contains dataset for Figure 8, involving Thrust measurements for pre-heating temperatures between 15°C and 200°C.

1.5 Lifetime Tests

Excel file, lifetime.xlsx, contains dataset for Figure 10, involving dP Chamber, Thrust, and Isp measurements for six lifetime tests.

1.6 Blowdown Performance Results

Excel file, blowdown.xlsx, contains dataset for Figure 13, involving Chamber Pressure, dP Chamber, Efficiency, Massflow Rate, Thrust, and Isp measurements for blowdown test.