

## Investigation of a PPT Utilizing Water as a Component Propellant

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Computational studies have shown that water propellant in PPTs offers improved performance over the traditionally used Teflon<sup>®</sup>. Additionally, water was found to be abundant in space and therefore represents an unlimited source of propellant. In the past, the problem of the feeding mechanism in PPTs for non-solid propellants was solved with the help of sophisticated gas feeding systems, thereby sacrificing the inherent simplicity of a PPT. To avoid this increase in complexity of PPTs, an alternative feeding mechanism for water was developed and will be described in the present paper. A comparison of this water propelled thruster with a standard Teflon<sup>®</sup> thruster was conducted with the help of various diagnostic systems, including Langmuir and pressure probes. Studies to relate pressure measurements with thrust stand measurements have been carried out. Furthermore, spectroscopy was utilized to evaluate the composition of the exhaust plume.