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IAF SPACE POWER SYMPOSIUM (C3)
Space Power System for Ambitious Missions (4)

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MAIN SYSTEM ELECTROLYSIS AND PURIFICATION (MSEP) FOR FOR A 60KG LUNAR ROVER(MSEP60): EFFICIENT-POWER GENERATION ON A LUNAR-FITTED FUEL CELL

Abstract

In the reduction of JSC-1A these variables were tested and will be used for reference for our mission. Testing for icy regolith in tubular reactors: 1. Closed reactor accumulates pressure build- up of the vapor and the constant change in water vapor Once pressure equilibrium occurs: 2. Venting i.e., exposing air to the secondary repository to the water vapor to maintain low pressures 3. Constant Time depends on evaporating surface area, resistance of regolith to vapor movement and volume There are several variable differences in terms of the storage and transfer mass (from the regolith) of the vapor condensate in the free volume and the reactor. The variables for our Lunar mission are as follows: a. Tubular temperature: If temperature increases the vapor pressure will increase on the surface which increases the rate of evaporation b. Free volume: increasing this will lead to a decrease in vapor pressures (not drastically) still allowing an increase in evaporation and allowing more excessive water vapor collection c. Mass transfer coefficient: decreasing this variable will increase the resistance of the regolith to break bonds with the water vapor in terms of transport. This decreases evaporation (vaporization) rates. d. Surface area of condensate : The surface area of the condensate's reactor if increased; will increase the room for vaporization per unit and quantity of the icy lunar regolith. Evaporation During Reactor Venting: Mass of vapor in free volume at the end of heating is