Parameters are estimated for a hypothetical, well stirred, continuous-feed electrolytic cell that converts 20% of a lunar soil feedstock to O₂ gas, 26% to Fe-Si metal, 13% to spinel, and 41% to slag. Advantages of a molten Fe-Si cathode for trapping metal on reduction, a relatively conductive steady-state composition in equilibrium with spinel (a proposed container material), and close electrodes (<1 cm cathode-anode distance) are discussed. To produce 1 tonne of O₂, ~6 MHW of energy are required for the electrolysis and IR heating within the melt, and another ~6 MWH may be introduced as waste heat through internal resistance of the electrodes. Thus, to produce 1 tonne of O₂ per 24 hours, ~0.5 MW of power delivered to the cell would be required.