

# On a Method for Evaluation of Thermochemical and Hybrid Water-Splitting Cycles

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A methodology has been developed for the evaluation of thermochemical and hybrid water-splitting cycles based on efficiency. Efficiency is referenced to the standard enthalpy of formation of water at 298K and includes minimum hot utility requirements, electrical work to power electrochemical reactions as well as power and heat required for separation processes. In addition, equilibrium conversions, not included in previous work were considered to make a more realistic assessment. The degrees of freedom of each cycle (temperatures, pressures and excess reactants) were considered and these values were varied to optimized efficiency. Results are shown for three different configurations considered for each of the ten cycles.