

反应堆工程

高温堆甲烷蒸汽重整制氢系统性能热力学分析

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摘要 从热力学的角度分析高温堆甲烷蒸汽重整制氢系统的性能, 为进一步研究实际的制氢系统提供框架。建立了完全反应模型和平衡反应模型, 研究系统效率, 产氢量随过程参数的变化关系, 得到各性能指标的极限值以及过程参数的最优值。通过与实验数据的比较, 采用平衡反应模型对系统进行初步分析是合适的。

关键词 [高温气冷堆](#) [制氢](#) [热力学](#) [效率](#)

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Thermodynamic Analysis of Performance of Steam Methane Reforming Hydrogen Production System Connected with High -Temperature Gas-Cooled Reactor

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Abstract Thermodynamic analysis of Performance of steam methane reforming hydrogen production system connected with high temperature gas cooled reactor is presented, which provides a framework for further detailed research. Complete reaction model and equilibrium reaction model have been developed. System efficiency and hydrogen output variation related to process parameters is researched. Limit value of performance index and optimum process parameter are determined. Comparisons of equilibrium reaction model prediction to experimental data showed equilibrium reaction model is appropriate for preliminarily analyzing the system.

Key words [high temperature gas cooled reactor](#) [hydrogen production](#) [thermodynamics](#) [efficiency](#)

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