

化学

## 高温气冷堆甲烷蒸汽重整制氢蒸汽重整器的初步研究

银华强, 姜胜耀, 张佑杰

清华大学 核能与新能源技术研究院 先进反应堆工程与安全教育部重点实验室, 北京 100084

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**摘要** 基于一维拟均相模型, 针对高温气冷堆具有单根转化管的甲烷蒸汽重整器建立了动态数学模型, 开发了相应的计算程序, 并对日本原子能研究所设计的甲烷重整器进行了稳态计算与分析。研究表明: 重整器氦气入口的散热损失对重整器性能有明显影响, 而化学反应速度则不是影响其性能的主要因素。稳态计算结果与实验结果较好吻合。

关键词 [高温气冷堆](#) [制氢](#) [蒸汽重整器](#)

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## Initial Study on Steam Reformer of High-Temperature Gas-Cooled Reactor Powered Steam Methane Reforming Hydrogen Production System

YIN Hua-qiang, JIANG Sheng-yao, ZHANG You-jie

Advanced Reactor Engineering and Safety Key Laboratory of Ministry of Education, Institute of Nuclear and New Energy Technology, Tsinghua University, Beijing 100084, China

**Abstract** Based on one-dimension quasi-homogeneous phase model, a dynamic model for single-tube steam reformer of high-temperature gas-cooled reactor was presented, and computer program was developed. Steady state calculation and analysis were performed for the steam reformer design by Japan Atomic Energy Research Institute. The results show that heat loss at the entrance of helium influences the steam reformer performance remarkably, and reaction velocity is not main factor influencing the performance. The steady state calculation results fit well with experimental results.

**Key words** [high-temperature](#) [gas-cooled](#) [reactor](#) [hydrogen](#) [production](#) [steam](#) [reformer](#)

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